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THEOLOGICAL SEMINARY

THE BLIND POPULATION OF THE UNITED STATES 1920

A STATISTICAL ANALYSIS OF THE DATA OBTAINED AT THE FOURTEENTH DECENNIAL CENSUS

DEPARTMENT
OF COMMERCE

BUREAU OF
THE CENSUS

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DEPARTMENT OF COMMERCE
WILLIAM F. WHITING, SECRETARY
U.S. BUREAU OF THE CENSUS
W. M. STEUART, *Director*

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LETTER OF TRANSMITTAL

DEPARTMENT OF COMMERCE,
BUREAU OF THE CENSUS,
Washington, D. C., August 10, 1927.

SIR: I transmit herewith a report on the blind population, which consists chiefly in a study and analysis of statistics compiled in connection with the census of 1920.

The 1920 statistics which formed the basis of this report were published in 1923 in a bulletin entitled "The Blind in the United States: 1920." This earlier publication contained no tables of ratios or percentages, but included many detailed statistics which are here presented only in summary form.

The present report was prepared under the supervision of Dr. Joseph A. Hill, assistant to the Director of the Census, and Leon E. Truesdell, chief statistician for population. The text analysis was written by Dr. Harry Best, professor of sociology at the University of Kentucky. The statistical tables were largely prepared under immediate charge of Bennet Mead, expert special agent.

Acknowledgment is also made of the helpful criticism of the proofs by Dr. William H. Wilmer, ophthalmologist in chief, Johns Hopkins Hospital, Baltimore, Md.

Respectfully,

W. M. STEUART,
Director of the Census.

Hon. HERBERT HOOVER,
Secretary of Commerce.

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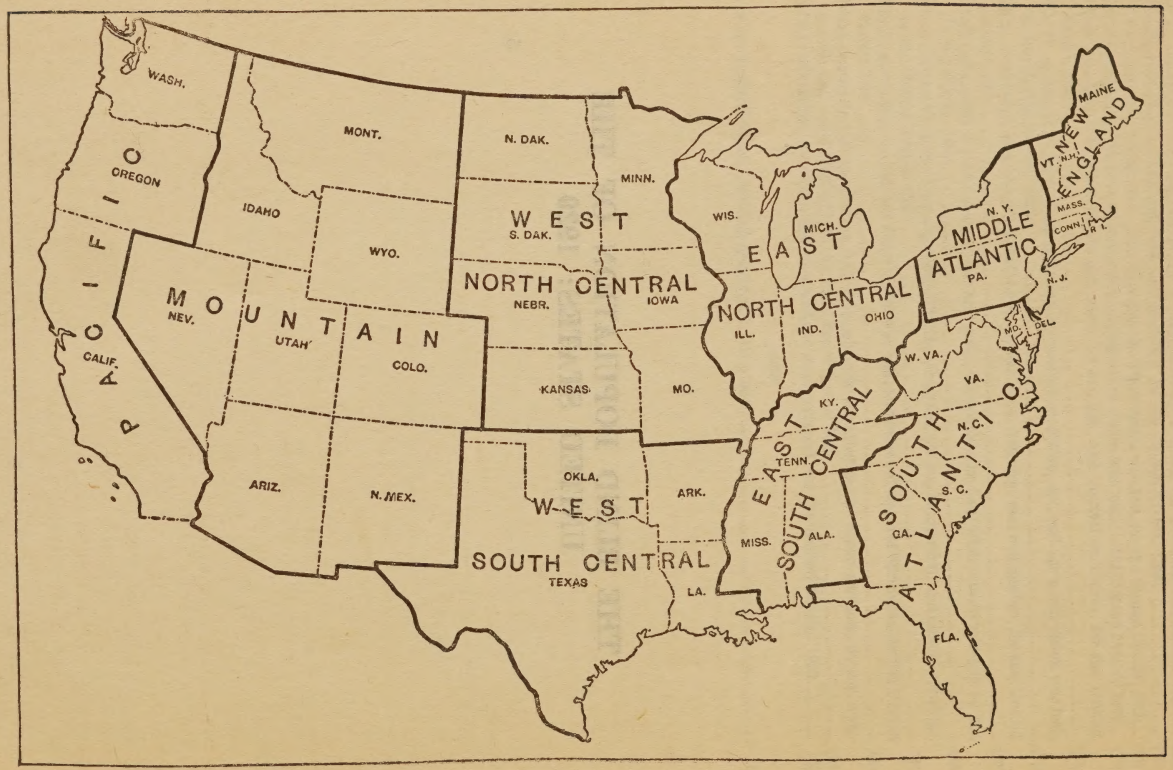
MAP OF UNITED STATES, SHOWING GEOGRAPHIC DIVISIONS



THE BLIND POPULATION OF THE UNITED STATES: 1920

INTRODUCTION

This report presents a summary and analysis of statistics of the blind in the United States in 1920.[1] The basic information concerning this class of the population was obtained in connection with the Fourteenth Census by the census enumerators, who reported on a separate sheet the names and addresses, together with general information as to sex, race, and age, of the blind persons whom they enumerated. These data were supplemented by the use of lists obtained from institutions and other agencies for the blind.

The total number of blind thus enumerated, from all sources, was 52,567, or 497 per million of the general population. Of the total number, 43,154, or 82.1 per cent, were reported by enumerators, and 9,413, or 17.9 per cent, by other agencies.[2] A special schedule of inquiry was sent out to persons thus reported as blind by enumerators and others. Most of the data here presented relate to the 40,913 blind persons returning these schedules, which called for a statement of such facts as age of loss of vision, cause of blindness, occupation, and education.

The first official census of the blind in the United States (and probably in the world) was taken in 1830, in connection with the Fifth Census. Statistics relating to the blind have been obtained at every succeeding census. Even for the general population, the facts of sex, color, and age are the only subjects concerning which the statistics extend further back in unbroken series than do those of the blind. In 1880, and again in 1890, special data not called for by the population schedule were obtained for the blind by the enumerators. In 1900 and 1910 special schedules, similar to those used for 1920, were mailed out to individuals reported as blind. On a number of subjects, therefore, more or less comparable data are available for censuses prior to 1920. There is especially close correspondence between the 1920 and 1910 figures, since the schedules used were identical except for slight variations in wording.[3]

Definition.—In the 1920 census, as in most prior enumerations, the statistics relate to those totally blind. In taking the census of the blind a clear definition of the group to be included is of peculiar importance, because of the vagueness in meaning of the term as commonly used. There is, in popular usage, no generally accepted line of demarcation between the totally and the partially blind. In the strictest sense, the totally blind might be said to include only those having no vision, not even perception of light. Such arbitrary limiting of the group would, however, lead to the exclusion of a large number of persons able to see light but

[1] The detailed figures were published, without text analysis, under the title, "The Blind in the United States: 1920."

[2] There were 5,117 reported by schools and other institutions for the blind, 3,696 on State registers of the blind, 270 by libraries for the blind, 152 by the Federal Board for Vocational Education, and 178 by individuals.

[3] See Appendix to earlier report, "The Blind in the United States, 1920," for inquiries on the schedules at the two censuses.

unable to distinguish persons or objects. Such persons labor under a handicap practically as severe as do those unable to see at all. Accordingly, the definition now accepted in census usage is intended to include all those whose defect of vision is so great that they can not engage in pursuits requiring vision. Ability to read print serves as the criterion. The definition of blindness used in the instructions to enumerators has, however, been far from uniform in the various censuses.

The 1870 census was the first at which the instructions to enumerators specified that only the "totally" blind were to be included. No more specific definition of the class intended to be covered had been given up to that time. Enumerators were simply instructed to report all "blind" persons whom they found. In 1880 the enumerators were for the first time given detailed instructions to assist them and filled out a schedule which indicated whether each individual was totally blind or "semiblind"; both these groups should be included to make up the blind population as defined in 1920.[4] In 1890 and 1900 the census of the blind included the partially blind as well as the totally blind, but the enumerator's special schedule report in 1890 showed the degree of blindness.[5]

In the tabulation of the 1900 returns the total shown practically represented the number returning special schedules. This number included between one-fourth and one-fifth [6] who were partially blind, while many totally blind persons were excluded because of failure to return schedules.

In 1910 the following instructions were printed on the enumerator's supplemental schedule:

"If a person is either totally or partially blind in both eyes, so as not to be able to read even with the help of glasses, write 'Bl.' "

In 1920 the instructions read:

"Include as *blind* any person who can not see well enough to read even with the aid of glasses. The test in case of infants must be whether they can apparently distinguish forms and objects; and in the case of older persons who are illiterate, whether they can presumably see well enough to read if they knew how to read. Do not include any person who is blind in one eye only."

It is evident that the 1920 instructions were more specific than those of 1910, and were, therefore, better adapted to insure accurate reporting. The 1920 definition supplied the enumerators with a standard as to blindness (lacking in 1910) for classifying illiterate persons and young children.[7]

A number of young persons in attendance at schools for the blind, for whom special schedules were returned, were included as blind, even though they pos-

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[4] The 1880 instructions read: "In this enumeration will be included not only the totally blind, but also the semiblind. No person will be carried on this Schedule, however, who can see sufficiently well to read. * * * The totally blind are unable to distinguish forms or colors; the partially blind can distinguish forms or colors but can not see to read, or at least not without such effort as to make reading practically impossible."

[5] For 1890 enumerators were required to report "every person who can not with each eye separately count accurately the number of fingers of another person held up before him a at distance of 1 foot." The 1900 instructions were: "* * * If you find that some member of the family can not see well, you will then ask whether he or she can see well enough to read a book; and should it appear that the sight is so seriously impaired that it is impossible for the person to read a book, even with the aid of glasses, then you will note such person as 'blind,' even though, as a matter of fact, he or she may have some slight power of sight."

[6] As indicated by partial reexamination of the 1900 schedules made in connection with the 1910 census.—The Blind in the United States: 1910, p. 19.

[7] "The definition furnished the census enumerators (in 1910), which made blindness consist in a defect of vision so great that the person enumerated was unable to read, even with the aid of glasses, while perhaps as simple and readily applied as any that can be devised, is manifestly of little value as a test where the person enumerated has not reached school age, or as the result of causes other than defective vision has never learned to read."—The Blind in the United States: 1910. p. 15.

sessed a small degree of vision. That is, as a rule, the attendance of a person at a school for the blind was considered to establish the fact of blindness in the practical sense. It is probable that as a result of this procedure persons of school age are somewhat overrepresented in the 1920 returns, as compared with persons of more advanced age.

Method of enumeration.—The procedure followed in taking the census of the blind has varied considerably from time to time. It is essential to consider these changes in connection with comparisons between censuses.

Prior to 1850 the census enumerators reported on a specially assigned line of each population schedule the total number of blind persons covered by the schedule. In the next five enumerations (1850 to 1890, inclusive) a column of the schedule was provided, in which the existence of blindness was to be stated for each individual so affected. In 1880 and 1890, besides the report on the population schedule, the enumerators were provided with special schedules for the blind on which they were to enter additional data not called for by the population schedule. For each name entered on these schedules they received extra compensation. In 1900 there was no column on the regular schedule, but the blind persons enumerated were designated on supplemental blanks which called for only the name, age, sex, and address of each person. Extra pay was allowed, as in the two preceding censuses. Subsequently, a special schedule was mailed to every person reported in this way. In 1910 a return was made to the plan followed prior to 1900, of using a special column of the population schedule for reporting the blind, but no extra compensation was given the enumerators. In addition to the information obtained by entries on the general schedule, a special schedule was mailed to each blind person so enumerated.

In 1920 the census enumerators were provided with a "supplemental schedule for the blind" and a "supplemental schedule for deaf-mutes" on which were to be reported on a separate line the name, sex, race, age, and address of each person said to be blind or a deaf-mute, there being no provision on the general schedule. No extra pay was given for this return in 1920. A special schedule was also used. The method used in 1920 was thus similar to that of 1900, in the use of a special blank for the designation of persons reported to be blind, instead of a special column on the population schedule; in this respect the 1920 method was unlike that of 1910 and censuses prior to 1900. On the other hand, the 1920 method was similar to that of 1910, and unlike those of 1880, 1890, and 1900, in that no extra compensation was given for the special report on the blind.

Finally, the census of 1920 was similar to those of 1900 and 1910 in the use of special schedules, on which most of the data were obtained by correspondence. In 1880 and 1890 regular enumerators filled the special schedule. This special schedule in 1920 included practically the same items of inquiry as in 1910. The classifications used in tabulating the 1920 statistics of the blind also were largely similar to those of 1910, although slight changes were made in the list of causes of blindness, the occupation lists, and some other subjects. The data obtained concerning blindness among parents, brothers, sisters, and children of those returning schedules were somewhat more detailed. One additional inquiry (question 34) requested information as to the receipt of public aid by the blind.

Accuracy and completeness of returns.—Any enumeration of the special classes made in conjunction with a general population census is likely to be more or less unsatisfactory in its results. Some of the more important difficulties involved in the enumeration of the blind are the following:

1. It is hard to define simply and yet precisely the group to be included. The result is that the census enumerators must differ in their standards concerning what persons should be reported as blind. Even experts often have difficulty

in determining whether blindness exists in individual cases. Blindness from certain important causes, notably cataract, comes gradually, so that there are bound to be many border-line cases whose proper classification is difficult to decide. It is evident that the enumerators, few of whom have any scientific knowledge of blindness and its causes, must have still greater difficulty.

2. Enumerators often do not see the person reported as blind and must depend upon the statements of others, and this is liable to result in omissions. "In many cases there is more or less reluctance to admit the fact of blindness, particularly on the part of persons becoming blind in adult life, who will frequently refuse to acknowledge that they are blind so long as there is any remnant of vision, and also on the part of the parents of blind children, partly by reason of a general unwillingness to admit the existence of defective children, and partly because blindness in the earlier years of life has its origin in a considerable proportion of cases in venereal infection, thereby attaching a certain stigma to the parent." [8]

3. On the other hand, a certain number of persons having defects of vision tend to exaggerate the seriousness of their defects, and thus may be improperly reported as blind, although not totally blind according to the census definition.

It is evident that the first factor mentioned above may tend either to increase or to decrease the number of persons enumerated as blind. The second factor, however, tends to decrease considerably and the third to increase, probably to a less extent, the reported blind population.

Two features of administrative method are of particular significance in their effect upon completeness of enumeration. First, the allowing of extra pay to enumerators tends to insure more complete enumeration, since enumerators are less likely to overlook the question. At the same time, some enumerators are likely to include persons who are not totally blind, since in deciding the numerous doubtful or border-line cases they prefer to include rather than to omit them. Second, the use of a column on the regular population schedule to designate persons reported as blind (as in 1910) presumably results in more complete returns than the use of a supplemental schedule. The enumerator, on reaching the column, is reminded to inquire whether any individual enumerated is blind; on the other hand, cases of blindness are so seldom encountered by the enumerators that they are liable to overlook the question when the record is kept on a separate sheet.

As stated previously, no extra pay was allowed in 1920 or 1910; therefore this feature of administrative method would tend toward equally complete returns in the past two censuses. On the other hand, the 1920 census of the blind was carried out, so far as the enumerator's part was concerned, by the use of a supplemental schedule instead of a column of the population schedule, as in 1910. This change presumably tended to make the returns from enumerators less complete in 1920 than in 1910.

The total number of blind persons in 1920, as given in this report, is 52,567. Of this number the enumerators reported only 48,031, as against enumerators' returns of 62,088 in 1910,[9] a reduction of 22.6 per cent during a decade within which the general population of the United States increased 14.9 per cent. So large a proportionate decrease in the blind population seems highly improbable. The above-mentioned changes in method afford a satisfactory explanation of

[8] The Blind in the United States: 1910, p. 15.

[9] The figures here cited for both 1920 and 1910 include those who returned special schedules showing them to be not totally blind. These numbered 4,877, or 10.2 per cent, for 1920, as compared to 4,463, or 7.2 per cent, for 1910. The large percentage thus excluded for 1920 is due to the fact that a much larger percentage returned the special schedules.

the decrease, to the effect that it is in the main merely apparent, and rather the result of incompleteness of enumeration.

This explanation is made still more plausible by the fact that for 1920, 9,413 additional blind persons, not reported by enumerators, were located through the aid of schools for the blind and other agencies. Furthermore, the failure of the enumerators to report this large number of blind persons (largely of school age) suggests the probable omission by enumerators of still others never located by the census because not known to the supplementary agencies.

In contrast with the returns from enumerators, the returns of special schedules for the blind in 1920 were decidedly larger than those for 1910. Of the 52,567 total enumerated blind population, 40,913, or 77.8 per cent, returned special schedules in 1920, as compared with 29,242, or 51.1 per cent, in 1910. This difference is due to the fact that for 1910, because of pressure of other work, the Census Bureau found it impracticable to carry out follow-up correspondence, while for 1920 a second and even a third request was made of each person who failed to respond within a reasonable time. As a result, there were included in the reported blind population for 1920 only 11,654 who failed to return special schedules, as against 28,030 for 1910. Obviously, some of these persons would have proved to be not totally blind had information been received from them. The inclusion of such unidentified partially blind persons in the statistics which relate to the aggregate number of totally blind persons enumerated tends toward exaggeration, perhaps more marked in 1910 than in 1920.

On the assumption that, among the blind reported by enumerators, persons not totally blind formed the same proportion for those who failed to return schedules as for those who returned them, the estimated number of such partially blind persons was 1,562 in 1920, as against 3,720 in 1910.[10]

If these numbers be deducted from the total numbers enumerated, the remaining estimated numbers of totally blind persons enumerated are 51,005 in 1920, as against 53,552 in 1910. It is not practicable, however, to eliminate the partially blind from the statistical tables which relate to the blind population enumerated. In any case their inclusion offsets in some degree the known deficiencies of enumeration, and it is unlikely that this error, for either census, affected seriously the representative character of the results, since the partially blind who were thus included probably did not differ appreciably from the totally blind in their class characteristics.[11]

In respect to the data based upon special schedule returns, however, the greater completeness of the returns for 1920 does affect the comparability of the results. It is significant that, as noted above, the 1910 statistics dealing with those returning special schedules cover only those blind persons who responded to the first request, while for 1920 a broader, and presumably more representative, group are included. It is possible that among those blind persons who responded to the first request a considerable percentage possessed distinctive class traits which differed from the prevailing characteristics of those who responded only after repeated requests. For example, persons possessing at least a certain

[10] The probable correctness of such an assumption is strengthened by the fact that, in spite of the wide difference in the proportionate numbers who returned schedules in 1910 and 1920, there was remarkably close agreement in the percentage found to be not totally blind. This percentage was 13.41 for 1920 and 13.27 for 1910. The percentage for 1920 is based solely upon the blind reported by enumerators, since the group here mentioned who failed to return schedules included only those reported by enumerators. Furthermore, this procedure insures closer comparability with the 1910 statistics, as these are practically restricted to the number reported by enumerators.

[11] The greater amount of blindness is due to diseases which are progressive, and even when total blindness is accidental in origin, its incidence is often gradual.

minimum of education, and who from various motives took a special interest in the inquiry, probably responded more generally to the first request than did those unable to understand the schedule or those who were indifferent to the purposes of the study. Allowance must obviously be made for this factor in comparisons between the 1910 and 1920 returns, as certain differences which do appear may be due partly to this altered composition of the group reporting rather than to an actual change in the characteristics of the blind population as a whole.

NUMBER AND DISTRIBUTION

Historical summary.—Each census of the blind should measure the prevalence of blindness. For each decade it should also serve to indicate whether blindness is increasing or decreasing and the rate of change. The Federal census statistics, however, owing to the changes in scope, definition, and method previously discussed, have varied considerably as to completeness and afford only approximate indications of the extent or trend of blindness. Chiefly, as a matter of historical interest, these statistics are summarized in Table 1.

TABLE 1.—TOTAL BLIND POPULATION ENUMERATED IN THE UNITED STATES: 1830 TO 1920

CENSUS YEAR	ENUMERATED BLIND POPULATION			CENSUS YEAR	ENUMERATED BLIND POPULATION		
	Total	Per cent of increase over preceding census [1]	Ratio per million of the general population		Total	Per cent of increase over preceding census [1]	Ratio per million of the general population
1920	52,567	−8.2	497	1870	20,320	60.5	527
1910	57,272	−11.6	623	1860	12,658	29.2	403
1900 [2]	64,763	28.1	852	1850	9,794	41.2	422
1890	50,568	3.4	808	1840	6,936	27.4	406
1880	48,928	140.8	976	1830	5,444		423

[1] A minus sign (−) denotes decrease.
[2] The number shown for 1900 is the total given in the published report. The estimated number of totally blind persons enumerated in 1900 was about 63,000, or 829 per million of the general population, with an increase of 24.6 per cent over 1890. (See footnote 6, p. 8.)

The first four enumerations were much less complete than those after 1860. They are, however, fairly comparable with each other, as no material change was made in the definition and methods used. The figures indicate that during this period of 30 years only very slight variations occurred in the ratio of blind to general population, and that no definite increase or decrease is apparent. So far as known, no special factors were operative in this period which would have tended to cause any material increase or decrease of blindness.

The considerable increases for 1870 and 1880 in the relative number of blind reported were probably due largely to more complete enumeration, although they represented in part a real increase in blindness, resulting from Civil War wounds or diseases, and perhaps from developing industrialism, accompanied by more frequent accidents. In 1880 the relative number of blind persons enumerated reached the maximum of 976 per million, or about 1 in every 1,000 of the total population. The 1880 census of the blind is believed to have been the most complete ever taken in this country, by reason of the special efforts made at this census to secure accurate returns, as well as the broader and clearer definition used, and the extra payment to enumerators for the return of schedules of the blind. Even when due allowance is made for variations in scope and completeness of the census, however, it is possible that at some date near 1880 blindness reached its maximum prevalence in proportion to population.

The low ratio of blind to general population shown for 1890 was due mainly to less complete enumeration, for which changed instructions to enumerators may have been largely accountable. The 1900 census, however, is believed to have been nearly as complete as that of 1880. Hence the materially lower ratio of blind to general population in 1900 clearly indicates a downward trend in the relative amount of blindness.

The proportionate numbers of blind enumerated for 1910 and 1920, while strengthening the presumption that blindness has been decreasing, probably give an unduly favorable impression of the rate of decrease, because of the incompleteness of the blind census in 1910 and 1920. None the less, there is reason to believe that the relative numbers of the blind population continued to decrease after 1900 at a pace at least as rapid as that noted during the period from 1880 to 1900, for the reason that certain of the leading causes of blindness—ophthalmia neonatorum in particular [12]—have been reduced by protective measures. During this period the number of blind persons per million of the general population was decreasing at a rate of approximately 7.85 per cent every 10 years. Assuming that the ratio of the blind to the general population continued to decrease at this same rate from 1880 to 1920, estimates more nearly approximating the total numbers of the blind may be obtained for 1890, 1910, and 1920.

Table 2 presents the figures for the blind population, as enumerated, and the approximate total blind, estimated on the basis just described, with ratios to the general population, for the census years from 1880 to 1920.

TABLE 2.—TOTAL ENUMERATED BLIND POPULATION OF THE UNITED STATES AND ESTIMATED TOTAL CORRECTED ON THE BASIS OF A CONTINUING DECREASE IN THE RATIO TO THE GENERAL POPULATION: 1880 TO 1920

CENSUS YEAR	Total population	ENUMERATED BLIND POPULATION		ESTIMATED BLIND POPULATION [1]	
		Number	Per million of the general population	Number	Per million of the general population
1920	105, 710, 620	52, 567	497	74, 400	704
1910	91, 972, 266	57, 272	623	70, 300	764
1900	75, 994, 575	64, 763	852	63, 000	829
1890	62, 947, 714	50, 568	808	56, 600	899
1880	50, 155, 783	48, 928	976	49, 000	976

[1] These estimates are based upon the assumption that the rate of decrease in the ratio of blind to the total population was approximately the same in each decade as it was between 1880 and 1900. By applying a continuous decrease of 7.85 per cent to the ratios succeeding that for 1880, the theoretical figures obtained for the blind population in 1900 and 1910 are very similar to those derived from a different method, which are discussed in the report for the latter census.—The Blind in the United States: 1910, pp. 16–19.

The figures in the last two columns of this table are merely approximate, but they probably afford a more accurate historical view of the amount of blindness than do the bare numbers of blind enumerated at the various censuses, which are presented in the preceding columns. The estimated figures indicate that while the general population of the country more than doubled between 1880 and 1920, the blind population, at the outside, increased only about 50 per cent. The relative number of blind in proportion to population accordingly decreased more than one-third. The blind population enumerated in 1920—52,567—represented slightly over two-thirds of the estimated total blind population in 1920—74,400.

Geographic divisions and States.—The total blind population enumerated at the census of 1920, together with the number of blind per million of the general population for each census from 1880 to 1920,[13] are shown for geographic divisions and States in Table 3.

[12] See section on Causes of Blindness, pp. 115–168.

[13] For variations in definition as used at the different enumerations, see Introduction, p. 7.

TABLE 3.—TOTAL BLIND POPULATION, 1920, AND NUMBER OF BLIND PER MILLION OF THE GENERAL POPULATION, 1880 TO 1920, FOR DIVISIONS AND STATES

DIVISION AND STATE	BLIND POPULATION					
	Total number, 1920	Number per million of general population				
		1920	1910	1900	1890	1880
UNITED STATES	52,567	497	623	852	808	976
GEOGRAPHIC DIVISIONS:						
New England	4,699	635	624	867	929	1,082
Middle Atlantic	9,374	421	518	707	721	927
East North Central	12,234	570	643	917	834	908
West North Central	6,111	487	574	842	711	820
South Atlantic	6,694	478	679	877	888	1,105
East South Central	4,935	555	835	1,089	963	1,184
West South Central	4,258	416	640	806	801	957
Mountain	1,906	571	679	780	659	1,012
Pacific	2,356	423	493	685	556	698
NEW ENGLAND:						
Maine	583	759	788	1,043	1,017	1,228
New Hampshire	382	862	676	1,013	1,009	1,187
Vermont	195	553	846	1,327	1,318	1,463
Massachusetts	2,589	672	608	790	824	972
Rhode Island	231	382	579	665	889	1,085
Connecticut	719	521	496	822	970	984
MIDDLE ATLANTIC:						
New York	4,205	405	515	755	732	986
New Jersey	1,075	341	444	533	581	733
Pennsylvania	4,094	469	546	705	747	907
EAST NORTH CENTRAL:						
Ohio	3,873	672	785	1,074	918	926
Indiana	2,223	759	785	1,187	992	1,131
Illinois	3,246	501	528	781	741	850
Michigan	1,579	430	560	804	776	787
Wisconsin	1,313	499	566	725	725	817
WEST NORTH CENTRAL:						
Minnesota	870	364	424	506	493	574
Iowa	1,159	482	624	902	743	806
Missouri	2,226	654	741	1,070	917	1,041
North Dakota	145	224	289	526	378	[1] 466
South Dakota	211	331	459	697	538	
Nebraska	405	312	389	600	462	486
Kansas	1,095	619	632	952	746	751
SOUTH ATLANTIC:						
Delaware	139	623	647	769	599	866
Maryland	763	526	619	827	786	1,012
District of Columbia	358	818	674	725	799	923
Virginia	1,161	503	800	857	1,034	1,131
West Virginia	647	442	653	965	924	1,011
North Carolina	1,230	481	708	944	985	1,338
South Carolina	597	355	667	822	866	1,105
Georgia	1,336	461	652	918	788	1,060
Florida	463	478	534	745	787	798
EAST SOUTH CENTRAL:						
Kentucky	1,640	679	940	1,295	1,063	1,283
Tennessee	1,429	611	895	1,188	1,028	1,314
Alabama	1,026	437	735	979	912	1,108
Mississippi	840	469	745	806	789	946
WEST SOUTH CENTRAL:						
Arkansas	919	524	763	1,210	1,026	1,211
Louisiana	725	403	668	775	766	899
Oklahoma	860	424	527	[2] 647	566	----------
Texas	1,754	376	626	687	712	864
MOUNTAIN:						
Montana	180	328	447	407	295	306
Idaho	131	303	485	686	356	184
Wyoming	30	154	329	216	115	192
Colorado	706	751	473	547	459	535
New Mexico	552	1,532	1,693	2,304	2,096	2,994
Arizona	101	302	959	561	470	668
Utah	165	367	504	748	640	875
Nevada	41	530	1,185	1,323	306	385
PACIFIC:						
Washington	498	367	384	405	318	626
Oregon	354	452	441	602	478	498
California	1,504	439	559	805	645	745

[1] Dakota Territory.

[2] Includes population of Indian Territory for 1900.

According to the enumeration of 1920, as shown by Table 3, there are 52,567 blind persons in the United States.[14] This is equivalent to a ratio of 497 blind persons to every million of population for the country at large. In other words, there is 1 blind person to every 2,011 persons in the total population.

The ratios found in the several divisions and in the several States vary considerably, however. The highest ratio in any geographic division is in the New England division, with 635 blind persons per million of general population. The Mountain division is next, with 571, a ratio nearly the same as that in the East North Central division, 570. After these come the East South Central division, with 555; the West North Central, with 487; and the South Atlantic, with 478. The divisions with the lowest ratios are the Pacific, with 423; the Middle Atlantic, with 421; and the West South Central, with 416.

The individual States having the highest ratios, each having over 650 blind persons per million of general population are, in the order named, New Mexico, New Hampshire, District of Columbia, Indiana, Maine, Colorado, Kentucky, Ohio, Massachusetts, and Missouri. The States having the smallest ratios, each having less than 350 blind per million of general population are, in the order named, Wyoming, North Dakota, Arizona, Idaho, Nebraska, Montana, South Dakota, and New Jersey. The ratio in New Mexico is 1,532; in Wyoming, 154.

The causes of these considerable variations in the distribution of the blind population of the United States are not fully understood. The theory that there might be peculiar pathological or other conditions existing on a considerable scale in different sections of the country to produce blindness is largely negatived by the fact that between contiguous States (in the same geographic division) there are sometimes wide differences, as in the case of New Hampshire and Vermont, Massachusetts and Rhode Island, Delaware and Maryland, Indiana and Illinois, Kansas and Nebraska, Alabama and Tennessee, and New Mexico and Arizona.

Certain reasons do appear, however, which furnish partial explanation of the differences in the ratios among geographic divisions and among States. In considerable measure in the New England States, and in a lesser degree in other divisions in the eastern part of the country, the large proportion of the blind is to be accounted for by the large proportion of old people here, upon whom blindness, as we are to see later, is peculiarly liable to fall.[15] Certain areas, especially in the north and east, are doubtless affected by the large proportions of foreign born, among whom, because of their relatively greater exposure to industrial accidents, including injuries to the eye, blindness prevails to a relatively greater extent. In certain States high ratios may be due to manufacturing operations, which cause blindness through some industrial process, and even more to mining operations, which always levy a severe toll upon the eyesight; this explanation must not be carried too far, however, for the reason that in some manufacturing and mining States the ratios are relatively low. Because of the large Negro population in the South, upon whom blindness falls more frequently than upon the white race, a rather higher ratio might be expected in this part of the country; yet the southern divisions show only moderate ratios, that of the West South Central being the lowest of all. A partial explanation of this situation is that the census returns are possibly less complete here than elsewhere. The comparatively low ratios generally in the Pacific division, and in certain States of the Mountain division, are probably due to the circumstance that their

[14] As previously stated, the actual number of totally blind persons is believed to be somewhat larger than the number enumerated. (See Introduction, pp. 9–11.)

[15] In New England in 1920 there was a higher percentage of persons 65 years of age and over than in any other geographic division. (See Fourteenth Census reports, Vol. II, p. 169.)

population is made up largely of newcomers or descendants of the rugged pioneers, of comparatively vigorous physique, among whom blind persons would naturally be found to a smaller extent than among inhabitants of the more settled regions. Probably, also, the ratios in the West would be even less but for their Indian population, among whom blindness of certain forms, especially from the disease known as trachoma, is relatively very common. The excessive proportion in New Mexico is attributable to the large number of Mexicans in that State, who are very susceptible to blindness from certain affections. In some areas, especially in certain States in the southeastern, the southwestern, and middle western parts of the country, much of the blindness is directly traceable to trachoma. In various localities other disorders of the eye may be responsible for a definite portion of blindness. To some degree, doubtless, climatic conditions have influence in the matter.

Urban concentration in different parts of the country has direct bearing upon the matter, in two ways. On the one hand, persons living in such centers are more liable to blindness from accidents, especially such as are occasioned in industry; and possibly they are also more liable to blindness from certain diseases. At the same time, because of the location there of numerous special institutions for the blind, such as homes, workshops, or schools, or for some other reason, there may have been a conscious grouping or gathering of the blind in urban centers. On the other hand, the relatively smaller number of the aged in large cities, a class from whom no small proportion of the blind is recruited, may serve to reduce the number of the sightless there. In addition, there are generally fuller facilities for the treatment of eye diseases in cities, and thus for the checking of possible blindness.[16]

Finally, there is the possibility, already alluded to, that the census may have been taken with greater thoroughness or with greater accuracy in some parts of the country than in others.

On the whole, blind people seem to be widely scattered over the United States, with relatively little concentration geographically. There are few regions where blindness obtains to an excessive degree, and none that is wholly free from it.

When comparison is made of the ratio of the blind to total population for 1920 and 1910, there is found a distinct decline for the country as a whole, but there are considerable variations as be ween different geographic divisions and different States. In this period the ratio of the blind has decreased in all divisions except the New England, and in all States except New Hampshire, Massachusetts, Connecticut, District of Columbia, Colorado, and Oregon. The largest decreases have occurred in the South.

So far as an explanation of these changes, some of them considerable, is forthcoming, it would seem to be most likely that certain of the diseases that induce blindness are being overcome, or their headway is being checked, to a greater extent in some areas than in others. This is doubtless the case with respect particularly to trachoma and ophthalmia neonatorum; against both of these affections a notable campaign has been waged of recent years. Industrial developments, with their effects on the eyesight, are also to be reckoned with in the matter, these developments being more pronounced in some sections than in others. The increase in the ratio in the New England division is doubtless

[16] In 1910 the enumeration brought out the fact that there were relatively larger numbers of blind in the smaller communities than in the very large centers. See The Blind in the United States: 1910, p. 26. In view of the greater longevity of all the people and the great increase of urban population, it is probable that there are many more blind persons in the cities in 1920 than in 1910.

attributable in some part to the increase in the number of the aged there. A not unimportant factor in the changes in general may lie in the greater completeness of the returns for one census than for another.

In a comparison of the ratios of the blind to total population from the year 1880 to 1920 there is found a general decrease, not only for the country as a whole but for each of the several geographic divisions.[17] This decrease is apparently most marked in the three southern and the Middle Atlantic divisions, in all of which the 1920 ratio of the blind to the general population is less than one-half that of 1880. Similar apparent reductions are observed among individual States, as follows: Vermont, Rhode Island, New York, New Jersey, West Virginia, Virginia, North Carolina, South Carolina, Georgia, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Texas, Arizona, and Utah. On the other hand, however, a few States show a gain in the ratio of the blind to general population in the period under review. These are Montana, Idaho, Colorado, and Nevada. The fact that all the last-named States are in the West may indicate simply that this part of the country, as it becomes more settled, is more and more reaching, through population movements and the increasing age of the population, its normal quota of blind people.

The decreases noted for Southern States might be thought to indicate that a more rapid reduction of blindness is being accomplished there than elsewhere, but it is to be remembered that the ratios for blindness in the South have been very large at times in the past. If, as is later brought out, blindness apparently now prevails much less extensively among Negroes, who constitute a large proportion of the population of the South, this is at least a partial explanation of the general decrease. Possibly, also, more or less credit must be given to the previously mentioned campaign against trachoma, a disease which has until recently prevailed in certain parts of the South.

How much, in general, the present scientific country-wide campaign against blindness is bearing fruit we do not know definitely. The connection between the various local movements in this direction and the reported reduction of blindness is not greatly in evidence as yet. We can hardly doubt, however, that these efforts on the whole are proving of much effect.

Of the whole number of blind enumerated in the entire country in 1920, 77.8 per cent returned the special schedules of inquiries, a considerably larger proportion than in 1910. The extent to which response was made to the special inquiries furnishes some indication as to the correctness of the original enumeration in different States. Table 4 gives the number and per cent of blind persons returning special schedules in 1920, for divisions and States, as compared with the percentage in 1910.

Differences between the two censuses in the proportions of blind persons returning the special schedules are very marked in all the divisions, but particularly in the New England, Middle Atlantic, West North Central, and Mountain divisions. These are not always the divisions in which the larger numbers were enumerated; therefore the variations between the different sections of the country are probably due to the degree of literacy and the proportions of urban population.

[17] On the subject of the comparability of census figures for different years, see Introduction. See also section on Causes of Blindness, pp. 115–167.

TABLE 4.—PROPORTION OF THE TOTAL BLIND POPULATION RETURNING SPECIAL SCHEDULES, BY DIVISIONS AND STATES: 1920 AND 1910

DIVISION AND STATE	Total blind enumerated, 1920	BLIND PERSONS RETURNING SPECIAL SCHEDULES		
		Number, 1920	Per cent of total [1]	
			1920	1910
UNITED STATES	52,567	40,913	77.8	51.1
GEOGRAPHIC DIVISIONS:				
New England	4,699	4,184	89.0	55.7
Middle Atlantic	9,374	7,807	83.3	52.0
East North Central	12,234	10,253	83.8	60.0
West North Central	6,111	4,881	79.9	53.2
South Atlantic	6,694	4,594	68.6	44.2
East South Central	4,935	3,371	68.3	45.0
West South Central	4,258	2,716	63.8	43.8
Mountain	1,906	1,400	73.5	46.2
Pacific	2,356	1,707	72.5	51.3
NEW ENGLAND:				
Maine	583	491	84.2	49.1
New Hampshire	382	337	88.2	55.0
Vermont	195	152	77.9	56.5
Massachusetts	2,589	2,381	92.0	58.1
Rhode Island	231	190	82.3	54.1
Connecticut	719	633	88.0	55.0
MIDDLE ATLANTIC:				
New York	4,205	3,414	81.2	53.0
New Jersey	1,075	921	85.7	57.3
Pennsylvania	4,094	3,472	84.8	49.5
EAST NORTH CENTRAL:				
Ohio	3,873	3,269	84.4	65.5
Indiana	2,223	1,833	82.5	54.8
Illinois	3,246	2,693	83.0	58.7
Michigan	1,579	1,346	85.2	53.4
Wisconsin	1,313	1,112	84.7	63.4
WEST NORTH CENTRAL:				
Minnesota	870	713	82.0	54.1
Iowa	1,159	965	83.3	47.6
Missouri	2,226	1,742	78.3	53.6
North Dakota	145	121	83.4	49.1
South Dakota	211	152	72.0	48.9
Nebraska	405	329	81.2	57.5
Kansas	1,095	859	78.4	58.9
SOUTH ATLANTIC:				
Delaware	139	123	88.5	45.8
Maryland	763	597	78.2	45.9
District of Columbia	358	197	55.0	52.9
Virginia	1,161	894	77.0	46.0
West Virginia	647	440	68.0	46.3
North Carolina	1,230	853	69.3	44.8
South Carolina	597	348	58.3	39.0
Georgia	1,336	841	62.9	42.3
Florida	463	301	65.0	43.3
EAST SOUTH CENTRAL:				
Kentucky	1,640	1,236	75.4	48.7
Tennessee	1,429	966	67.6	45.4
Alabama	1,026	669	65.2	47.1
Mississippi	840	500	59.5	35.7
WEST SOUTH CENTRAL:				
Arkansas	919	625	68.0	51.2
Louisiana	725	454	62.6	40.1
Oklahoma	860	549	63.8	43.0
Texas	1,754	1,088	62.0	42.1
MOUNTAIN:				
Montana	180	124	68.9	39.9
Idaho	131	103	78.6	41.8
Wyoming	30	18	----	----
Colorado	706	559	79.2	54.8
New Mexico	552	372	67.4	51.1
Arizona	101	54	53.5	27.0
Utah	165	138	83.6	56.9
Nevada	41	32	----	----
PACIFIC:				
Washington	498	377	75.7	51.9
Oregon	354	276	78.0	52.2
California	1,504	1,054	70.1	50.9

[1] Per cent not shown where base is less than 100.

SEX

Comparison with earlier censuses.—At each enumeration of the blind in the United States since 1850 the number of each sex has been obtained. Table 5 gives the total number of blind males and females, in comparison with the sex distribution of the general population from 1850 to 1920.

TABLE 5.—TOTAL BLIND POPULATION, BY SEX, WITH SEX RATIOS FOR THE BLIND AND FOR THE GENERAL POPULATION, FOR THE UNITED STATES: 1850 TO 1920

CENSUS YEAR	BLIND POPULATION				Males per 100 females in the general population	EXCESS OF MALES PER 100 FEMALES IN BLIND POPULATION AS COMPARED WITH GENERAL POPULATION	
	Total number		Number per million of the general population of same sex		Males per 100 females	Number	Per cent
	Male	Female	Male	Female			
1920	30,160	22,407	560	432	134.6	104.0	30.6	29.4
1910	32,443	24,829	685	556	130.7	106.0	24.7	23.3
1900	37,054	27,709	955	745	133.7	104.4	29.3	28.1
1890	28,080	22,488	876	736	124.9	105.0	19.9	19.0
1880	26,748	22,180	1,048	900	120.6	103.6	17.0	16.4
1870	11,343	8,977	582	471	126.4	102.2	24.2	23.7
1860	7,227	5,431	449	354	133.1	104.7	28.4	27.1
1850	5,455	4,339	461	382	125.7	104.3	21.4	20.5

The ratios of males to 100 females among the blind show considerable variations since 1850, and these variations from census to census have little correspondence with the changes in sex ratios of the general population.

Of the 52,567 blind persons enumerated in 1920, 30,160, or 57.4 per cent, were males and 22,407, or 42.6 per cent, females. There is thus a considerably greater proportion of males among the blind population than is the case with the general population, with males comprising 51 per cent of the total and females 49 per cent. For every million males in the total population the census shows 560 to be blind, and for every million females 432 blind. For every 100 blind females there are 134.6 blind males, while in the total population the ratio is only 104.

The reasons for these large proportions of males in the blind population are only partially clear. In some measure, they are due to the greater exposure of males to industrial accidents, including explosions in mines, and to occupational diseases. Another reason, probably, is the greater prevalence among males of venereal disease, which, either directly or indirectly, frequently causes blindness. Still another factor bearing upon this excess of males is the number of males losing vision while in military service.

The general increase in the number of males per 100 females since 1880 may be considered as one of the results of the continued industrial growth of the country, a greater number of accidents to the eyes of male workers naturally accompanying such growth.

Geographic divisions and States.—Table 6 gives the numbers of blind males and blind females for 1920 by geographic divisions and States. It also shows the ratios of males to 100 females among the blind population as compared with corresponding ratios for the total population. In connection with this table, figures are given in Table 7 which show the numbers of the blind of either sex returning the special schedules and the percentage which such persons constitute of the total number enumerated.

TABLE 6.—TOTAL BLIND POPULATION, BY SEX, WITH SEX RATIOS FOR THE BLIND AND FOR THE GENERAL POPULATION, BY DIVISIONS AND STATES: 1920

DIVISION AND STATE	BLIND POPULATION					Males per 100 females in the general population	EXCESS OF MALES PER 100 FEMALES IN BLIND POPULATION AS COMPARED WITH GENERAL POPULATION [2]	
	Total number		Number per million of the general population of same sex		Males per 100 females [1]		Number	Per cent
	Male	Female	Male	Female				
UNITED STATES	30,160	22,407	560	432	134.6	104.0	30.6	29.4
GEOGRAPHIC DIVISIONS:								
New England	2,571	2,128	700	571	120.8	98.5	22.3	22.6
Middle Atlantic	5,258	4,116	469	372	127.7	101.4	26.3	25.9
East North Central	6,965	5,259	631	505	132.2	105.7	26.5	25.1
West North Central	3,529	2,582	546	424	136.7	106.1	30.6	28.8
South Atlantic	3,867	2,827	550	407	136.8	101.2	35.6	35.2
East South Central	2,904	2,031	649	459	143.0	101.1	41.9	41.4
West South Central	2,447	1,811	465	364	135.1	105.8	29.3	27.7
Mountain	1,169	737	653	476	158.6	115.7	42.9	37.1
Pacific	1,450	906	489	343	160.0	113.9	49.1	40.5
NEW ENGLAND:								
Maine	317	266	815	701	119.2	102.5	16.7	16.3
New Hampshire	213	169	959	765	126.0	100.5	25.5	25.4
Vermont	102	93	570	536	----------	103.0	----------	----------
Massachusetts	1,390	1,199	735	611	115.9	96.3	19.6	20.4
Rhode Island	113	118	380	385	95.8	97.0	−1.2	−1.2
Connecticut	436	283	627	413	154.1	101.5	52.6	51.8
MIDDLE ATLANTIC:								
New York	2,254	1,951	435	375	115.5	99.8	15.7	15.7
New Jersey	596	479	375	306	124.4	101.5	22.9	22.6
Pennsylvania	2,408	1,686	544	393	142.8	103.2	39.6	38.4
EAST NORTH CENTRAL:								
Ohio	2,199	1,674	744	597	131.4	105.4	26.0	24.7
Indiana	1,257	966	844	670	130.1	103.3	26.8	25.9
Illinois	1,814	1,432	549	450	126.7	103.9	22.8	21.9
Michigan	894	685	464	394	130.5	110.8	19.7	17.8
Wisconsin	801	512	590	401	156.4	106.4	50.0	47.0
WEST NORTH CENTRAL:								
Minnesota	532	338	427	296	157.4	109.1	48.3	44.3
Iowa	659	500	536	426	131.8	104.7	27.1	25.9
Missouri	1,221	1,005	709	598	121.5	102.5	19.0	18.5
North Dakota	87	58	255	190	----------	112.0	----------	----------
South Dakota	127	84	377	281	----------	112.6	----------	----------
Nebraska	229	176	340	282	130.1	107.9	22.2	20.6
Kansas	674	421	741	490	160.1	105.7	54.4	51.5
SOUTH ATLANTIC:								
Delaware	91	48	800	439	----------	104.1	----------	----------
Maryland	447	316	613	439	141.5	101.3	40.2	39.7
District of Columbia	185	173	909	739	106.9	87.0	19.9	22.9
Virginia	691	470	591	412	147.0	102.4	44.6	43.6
West Virginia	376	271	493	387	138.7	108.9	29.8	27.4
North Carolina	690	540	539	422	127.8	99.9	27.9	27.9
South Carolina	334	263	398	311	127.0	99.2	27.8	28.0
Georgia	790	546	547	376	144.7	99.6	45.1	45.3
Florida	263	200	531	423	131.5	104.7	26.8	25.6
EAST SOUTH CENTRAL:								
Kentucky	968	672	789	565	144.0	103.2	40.8	39.5
Tennessee	844	585	719	503	144.3	100.9	43.4	43.0
Alabama	590	436	503	371	135.3	99.8	35.5	35.6
Mississippi	502	338	560	378	148.5	100.4	48.1	47.9
WEST SOUTH CENTRAL:								
Arkansas	520	399	581	466	130.3	104.5	25.8	24.7
Louisiana	418	307	463	343	136.2	100.9	35.3	35.0
Oklahoma	510	350	482	361	145.7	109.0	36.7	33.7
Texas	999	755	415	335	132.3	106.9	25.4	23.8
MOUNTAIN:								
Montana	122	58	407	233	----------	120.5	----------	----------
Idaho	74	57	316	288	----------	118.2	----------	----------
Wyoming	21	9	190	107	----------	131.3	----------	----------
Colorado	444	262	901	586	169.5	110.3	59.2	53.7
New Mexico	332	220	1,743	1,295	150.9	112.1	38.8	34.6
Arizona	63	38	343	252	----------	121.9	----------	----------
Utah	89	76	384	350	----------	106.8	----------	----------
Nevada	24	17	519	545	----------	148.4	----------	----------
PACIFIC:								
Washington	293	205	399	330	142.9	118.1	24.8	21.0
Oregon	218	136	524	371	160.3	113.4	46.9	41.4
California	939	565	518	350	166.2	112.4	53.8	47.9

[1] Ratio not shown where number of females is less than 100.
[2] A minus sign (—) indicates fewer males than in the general population.

TABLE 7.—PROPORTION OF THE TOTAL BLIND POPULATION RETURNING SPECIAL SCHEDULES, BY SEX, BY DIVISIONS AND STATES: 1920 AND 1910

DIVISION AND STATE	MALE				FEMALE			
	Total blind enumerated, 1920	Returning special schedules			Total blind enumerated, 1920	Returning special schedules		
		Number, 1920	Per cent of total [1]			Number, 1920	Per cent of total [1]	
			1920	1910			1920	1910
UNITED STATES	30,160	23,977	79.5	52.9	22,407	16,936	75.6	48.7
GEOGRAPHIC DIVISIONS:								
New England	2,571	2,311	89.9	56.4	2,128	1,873	88.0	54.9
Middle Atlantic	5,258	4,430	84.3	53.3	4,116	3,377	82.0	50.4
East North Central	6,965	5,924	85.1	60.4	5,269	4,329	82.2	59.5
West North Central	3,529	2,905	82.3	54.4	2,582	1,976	76.5	51.7
South Atlantic	3,867	2,778	71.8	47.2	2,827	1,816	64.2	40.6
East South Central	2,904	2,062	71.0	48.7	2,031	1,309	64.5	40.5
West South Central	2,447	1,611	65.8	47.4	1,811	1,105	61.0	39.3
Mountain	1,169	887	75.9	48.5	737	513	69.6	42.6
Pacific	1,450	1,069	73.7	51.5	906	638	70.4	51.0
NEW ENGLAND:								
Maine	317	281	88.6	51.8	266	210	78.9	44.7
New Hampshire	213	189	88.7	54.8	169	148	87.6	55.1
Vermont	102	84	82.4	57.3	93	68	----	55.6
Massachusetts	1,390	1,267	91.2	57.3	1,199	1,114	92.9	59.0
Rhode Island	113	97	85.8	55.3	118	93	78.8	52.8
Connecticut	436	393	90.1	59.8	283	240	84.8	48.8
MIDDLE ATLANTIC:								
New York	2,254	1,865	82.7	54.8	1,951	1,549	79.4	50.8
New Jersey	596	517	86.7	57.8	479	404	84.3	56.8
Pennsylvania	2,408	2,048	85.0	50.5	1,686	1,424	84.5	48.0
EAST NORTH CENTRAL:								
Ohio	2,199	1,881	85.5	63.8	1,674	1,388	82.9	67.8
Indiana	1,257	1,063	84.6	58.5	966	770	79.7	50.2
Illinois	1,814	1,526	84.1	59.4	1,432	1,167	81.5	57.7
Michigan	894	778	87.0	53.1	685	568	82.9	53.7
Wisconsin	801	676	84.4	64.4	512	436	85.2	62.2
WEST NORTH CENTRAL:								
Minnesota	532	459	86.3	54.4	338	254	75.1	53.7
Iowa	659	561	85.1	49.4	500	404	80.8	45.2
Missouri	1,221	984	80.6	54.9	1,005	758	75.4	51.8
North Dakota	87	73	----	----	58	48	----	----
South Dakota	127	95	74.8	48.4	84	57	----	49.5
Nebraska	229	194	84.7	57.4	176	135	76.7	57.8
Kansas	674	539	80.0	59.8	421	320	76.0	57.6
SOUTH ATLANTIC:								
Delaware	91	79	----	----	48	44	----	----
Maryland	447	367	82.1	49.6	316	230	72.8	41.3
District of Columbia	185	121	65.4	56.7	173	76	43.9	48.5
Virginia	691	562	81.3	50.0	470	332	70.6	41.2
West Virginia	376	266	70.7	48.9	271	174	64.2	42.8
North Carolina	690	484	70.1	46.5	540	369	68.3	43.2
South Carolina	334	211	63.2	43.2	263	137	52.1	33.8
Georgia	790	512	64.8	45.0	546	329	60.3	38.8
Florida	263	176	66.9	46.2	200	125	62.5	39.8
EAST SOUTH CENTRAL:								
Kentucky	968	737	76.1	52.2	672	499	74.3	44.2
Tennessee	844	602	71.3	50.0	585	364	62.2	40.3
Alabama	590	400	67.8	50.1	436	269	61.7	43.4
Mississippi	502	323	64.3	39.1	338	177	52.4	31.8
WEST SOUTH CENTRAL:								
Arkansas	520	355	68.3	53.4	399	270	67.7	48.8
Louisiana	418	273	65.3	46.5	307	181	59.0	32.0
Oklahoma	510	339	66.5	46.2	350	210	60.0	38.8
Texas	999	644	64.5	45.4	755	444	58.8	37.9
MOUNTAIN:								
Montana	122	89	73.0	43.2	58	35	----	----
Idaho	74	56	----	----	57	47	----	----
Wyoming	21	13	----	----	9	5	----	----
Colorado	444	368	82.9	57.5	262	191	72.9	50.0
New Mexico	332	226	68.1	52.1	220	146	66.4	49.5
Arizona	63	39	----	32.1	38	15	----	----
Utah	89	77	----	58.3	76	61	----	----
Nevada	24	19	----	----	17	13	----	----
PACIFIC:								
Washington	293	225	76.8	49.5	205	152	74.1	56.3
Oregon	218	175	80.3	52.8	136	101	74.3	----
California	939	669	71.2	51.9	565	385	68.1	48.9

[1] Per cent not shown where base is less than 100.

There appears to be a fairly close correspondence in the several geographic divisions between the ratio of males to 100 females among the blind and the ratio in the general population. In the New England division, where there is the lowest ratio for the general population, there is the lowest ratio for the blind. In the far West the excess of males in both groups is strikingly high, doubtless because of the considerable mining operations there. In the South Atlantic and East South Central divisions, however, the ratio with the blind is above the average for the United States, while the ratio with the general population is below it. One reason for the exceptionally large proportions of blind males in these two divisions may lie in the circumstance that with Negroes, who constitute a very considerable portion of the population in the South, blindness obtains relatively more extensively among males than among females. In the different States the ratios for the blind and for the general population, while they show variations in a number of cases, are for the most part in correspondence. The highest ratio shown for males among the blind is in Colorado, with 169.5 males to every 100 females, and the lowest ratio is in Rhode Island, with 95.8 males to every 100 females.

With respect to 1910, it appears that while the excess of males over females in the general population has decreased, the ratios changing from 106 males per 100 females in 1910 to 104 per 100 in 1920, the excess among the blind has increased, the ratios in the two years being, respectively, 130.7 and 134.6. If it is a fact, after all, that blindness is decreasing, the decrease is the more marked in the case of females.

RACE AND NATIVITY

The blind population has been enumerated by color or race at each of the censuses since 1830; whites have been returned as native or foreign born since 1860. The total enumeration in 1920 did not bring out the facts as to nativity, but this information was obtained from the somewhat smaller group returning the special schedules. In the study of the data for earlier censuses, what has already been said about the comparability of the figures should be borne in mind.

Comparison with general population.—Table 8 shows the number and per cent distribution of the blind by color or race for 1920 in comparison with these earlier censuses, together with the number of blind per million of the total population of the same color or race. The colored comprise almost entirely Negroes and Indians, the small number of other colored being for the most part orientals.

TABLE 8.—TOTAL BLIND POPULATION, BY COLOR OR RACE, FOR THE UNITED STATES: 1830 TO 1920

COLOR OR RACE	1920	1910	1900	1890	1880	1870	1860	1850	1840	1830
	NUMBER									
All classes	52,567	57,272	64,763	50,568	48,928	20,320	12,658	9,794	6,936	5,444
White	45,737	47,585	56,535	43,351	41,278	16,966	10,729	7,978	5,031	3,974
Negro	6,302	8,849	7,646	7,060	[1] 7,383	3,321	1,925	[2] 1,816	[2] 1,905	[2] 1,470
Indian	488	804	568	141	244	29	----	----	----	----
Other colored	40	34	14	16	23	4	4	----	----	----
	PER CENT DISTRIBUTION									
All classes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White	87.0	83.1	87.3	85.7	84.4	83.5	84.8	81.5	72.5	73.0
Negro	12.0	15.5	11.8	14.0	15.1	16.3	15.2	18.5	27.5	27.0
Indian	0.9	1.4	0.9	0.3	0.5	0.1	----	----	----	----
Other colored	0.1	0.1	[3]	[3]	[3]	[3]	[3]	----	----	----
	NUMBER PER MILLION OF GENERAL POPULATION									
All classes	497	623	852	808	976	527	403	422	406	423
White	482	582	846	788	951	505	399	408	354	377
Negro	602	900	866	945	1,122	681	433	499	663	631
Indian	1,996	3,026	2,395	568	3,674	1,127	----	----	----	----
Other colored	[4]	[4]	[4]	[4]	[4]	[4]	[4]	----	----	----

[1] Includes 75 persons reported as foreign colored without further statement.
[2] Reported as "colored," but probably all Negro, inasmuch as no colored other than Negroes were enumerated in the general population prior to 1860.
[3] Less than one-tenth of 1 per cent.
[4] Ratio not shown by reason of the small numbers involved.

Of the whole number of blind in 1920, 45,737, or 87 per cent, were white and 13 per cent Negroes and other colored. The proportion of whites in the total blind enumerated has, on the whole, slowly increased. The colored races manifest a corresponding decrease, the proportion of them in 1920 being less than one-half as large as in 1830. As much the larger part of this group are Negroes, the number of Indians at several of the earlier censuses being so small that they were not reported separately, it appears that in proportion to the total, blindness is diminishing in the largest degree among Negroes. The principal decline occurred before 1860, when statistics for this race were much less trustworthy, but even since that

date there has been, on the whole, a relative decrease in the proportion of blindness for Negroes.

The ratio of the blind per million of the general population shows great variations, for both the whites and Negroes, in the different census years. From 1880 to 1920, however, the best period for comparison, there are decreases shown for both races, these decreases being not greatly different. Whatever the decrease that appears among Negroes, it is due probably to the increasing availability of medical treatment for eye troubles among them, with consequent arrest of incipient blindness.

Table 9 gives the number and per cent distribution by color or race of the blind population and of the total population enumerated in 1920 and the number of blind per million of the general population of the same color or race.

TABLE 9.—TOTAL BLIND POPULATION, BY COLOR OR RACE, FOR THE UNITED STATES: 1920

COLOR OR RACE	BLIND POPULATION			GENERAL POPULATION	
	Number	Per cent distribution	Number per million of the general population of same color or race	Number	Per cent distribution
All classes	52,567	100.0	497	105,710,620	100.0
White	45,737	87.0	482	94,820,915	89.7
Negro	6,302	12.0	602	10,463,131	9.9
Indian	488	0.9	1,996	244,437	0.2
Other colored[1]	40	0.1	220	182,137	0.2

[1] Chiefly Chinese and Japanese.

About seven-eighths (87 per cent) of the blind are white and about one-eighth (13 per cent) are colored. Of the latter nearly all are Negroes, Indians constituting only 0.9 per cent of the total blind, and other colored 0.1 per cent. There are relatively more Negroes among the blind than among the general population, the percentages of the respective totals being 12 per cent and 9.9 per cent. A proportionate excess of blind persons is found also among Indians, and to an even greater degree, this race having a percentage of the total blind more than four times as large as their percentage of the general population, or 0.9 per cent and 0.2 per cent, respectively. For the other colored, largely orientals, the respective percentages are 0.1 per cent and 0.2 per cent, orientals in this country thus appearing to contain relatively fewer blind among them than any of the other races.

The ratio of the white blind to the total white population is 482. The corresponding ratio for Negroes is 602, for Indians 1,996, and for other colored 220. The very high ratio for Indians is attributable largely to trachoma, a disease which has attacked that race with peculiar malignity; perhaps it is due, also, to a somewhat less extent, to the excessive prevalence of smallpox among them. Neither Indians nor Negroes are fully in touch with medical facilities for the treatment of disorders affecting the eyes. With very many of them, diseases are allowed to run their course unchecked, leaving blindness in their wake. Another important factor to remember, in connection with the considerable proportion of blindness among Negroes, is their relatively greater susceptibility to disease in general, together with insufficient care in its treatment.

Table 10 gives percentages for 1920 and 1910, showing the distribution by color or race of the total blind enumerated and a similar distribution for the smaller group returning special schedules. For the latter the native and foreign-born whites can be shown separately.

TABLE 10.—BLIND POPULATION, BY RACE AND NATIVITY, FOR THE UNITED STATES: 1920 AND 1910

RACE AND NATIVITY	TOTAL ENUMERATED			RETURNING SPECIAL SCHEDULES			GENERAL POPULATION—PER CENT DISTRIBUTION		Blind returning special schedules per million of same race and nativity, 1920
	Number	Per cent distribution		Number	Per cent distribution				
	1920	1920	1910	1920	1920	1910	1920	1910	
All classes	52,567	100.0	100.0	40,913	100.0	100.0	100.0	100.0	387
White	45,737	87.0	83.1	36,640	89.6	86.8	89.7	88.9	386
Native	(1)	(1)	65.7	30,313	74.1	70.0	76.7	74.4	374
Foreign-born	(1)	(1)	17.4	6,327	15.5	16.8	13.0	14.5	461
Negro	6,302	12.0	15.5	3,936	9.6	12.4	9.9	10.7	376
Indian	488	0.9	1.4	308	0.8	0.8	0.2	0.3	1,260
Other colored[2]	40	0.1	0.1	29	0.1	(3)	0.2	0.2	159

[1] Not tabulated separately. [2] Chiefly Chinese and Japanese. [3] Less than one-tenth of 1 per cent.

Foreign-born whites, among those returning special schedules in 1920, are found to have a slightly higher proportion with the blind than with the total population, the respective percentages being 15.5 per cent and 13 per cent. The reason for this special incidence of blindness among the foreign born lies mainly in the hazard, including the hazard to the eye, which attends the industrial operations of many of this class, in mining especially; a large number of them are in early adult life, the age when blindness from such causes is most frequent. An additional factor in causing a high proportion of blindness among foreign-born whites would be the relatively advanced age of this group as a whole. Conversely, the native white population is relatively freer from blindness, their proportion among the blind being 74.1 per cent, as compared with 76.7 in the total population. The last column in the table gives further evidence of the large amount of blindness among the foreign-born whites as compared with the native elements, by showing the number of blind persons in each class returning special schedules, in relation to their numbers in the general population in 1920.

The foreign-born blind population shows a slightly smaller proportion in 1920 than in 1910, probably because the restrictive legislation in effect for several years preceding the 1920 enumeration had allowed but few to enter the country, and the group already here had had sufficient time to become somewhat better adjusted to American ways, incidentally becoming less liable to incur blindness. In other words, the fact that there were fewer of the newly arrived immigrants in 1920 than in 1910 would be a factor in decreasing the proportion of blind in the whole group. A continued decrease in the proportion of blindness among this class may on these grounds be looked for at succeeding enumerations. Between 1910 and 1920 the proportion for Negro blind decreased also, while the proportion for native whites increased.

Geographic divisions and States.—In Table 11 are shown, by race, for the several geographic divisions and for the different States, the total number of the blind and their number per million of the general population of the same race.

TABLE 11.—TOTAL BLIND POPULATION, BY COLOR OR RACE, BY DIVISIONS AND STATES: 1920

DIVISION AND STATE	BLIND POPULATION					NUMBER PER MILLION OF GENERAL POPULATION OF SAME COLOR OR RACE			
	All classes	White	Negro	Indian	Other colored[1]	All classes	White	Negro	Indian
UNITED STATES	52,567	45,737	6,302	488	40	497	482	602	1,996
GEOGRAPHIC DIVS.:									
New England	4,699	4,617	69	13		635	631	873	7,580
Middle Atlantic	9,374	8,987	376	10	1	421	415	626	1,684
E. North Central	12,234	11,669	495	62	8	570	557	962	3,950
W. North Central	6,111	5,728	307	76		487	469	1,102	2,040
South Atlantic	6,694	4,249	2,431	12	2	478	440	562	878
E. South Central	4,935	3,411	1,514	10		555	536	600	6,161
W. South Central	4,258	3,129	1,047	77	5	416	386	507	1,270
Mountain	1,906	1,745	26	132	3	571	543	844	1,717
Pacific	2,356	2,202	37	96	21	423	411	774	3,096
NEW ENGLAND:									
Maine	583	579		4		759	756		4,768
New Hampshire	382	382				862	864		
Vermont	195	195				553	554		
Massachusetts	2,589	2,528	55	6		672	665	1,210	10,811
Rhode Island	231	225	4	2		382	379	399	18,182
Connecticut	719	708	10	1		521	521	475	6,289
MIDDLE ATLANTIC:									
New York	4,205	4,085	114	6		405	402	574	1,090
New Jersey	1,075	1,004	68	3		341	331	581	30,000
Pennsylvania	4,094	3,898	194	1	1	469	462	682	2,967
E. NORTH CENTRAL:									
Ohio	3,873	3,645	221		7	672	654	1,187	
Indiana	2,223	2,126	95	2		759	746	1,176	16,000
Illinois	3,246	3,097	144	5		501	492	790	25,773
Michigan	1,579	1,536	29	13	1	430	426	483	2,316
Wisconsin	1,313	1,265	6	42		499	483	1,154	4,370
W. NORTH CENTRAL:									
Minnesota	870	838	4	28		364	354	454	3,196
Iowa	1,159	1,139	19	1		482	478	1,000	1,890
Missouri	2,226	2,029	195	2		654	629	1,094	11,696
North Dakota	145	143		2		224	223		320
South Dakota	211	182		29		331	294		1,770
Nebraska	405	385	6	14		312	301	453	4,848
Kansas	1,095	1,012	83			619	592	1,433	
SOUTH ATLANTIC:									
Delaware	139	108	31			623	561	1,022	
Maryland	763	558	205			526	463	839	
Dist. of Columbia	358	249	109			818	762	991	
Virginia	1,161	687	471	2	1	503	425	683	2,427
West Virginia	647	609	38			442	442	440	
North Carolina	1,230	825	397	7	1	481	463	520	592
South Carolina	597	287	308	2		355	351	356	6,579
Georgia	1,336	651	685			461	385	568	
Florida	463	275	187	1		478	431	568	1,931
E. SOUTH CENTRAL:									
Kentucky	1,640	1,348	291	1		679	618	1,233	17,544
Tennessee	1,429	1,100	326	3		611	583	722	53,571
Alabama	1,026	562	461	3		437	388	512	7,407
Mississippi	840	401	436	3		469	470	466	2,715
W. SOUTH CENTRAL:									
Arkansas	919	702	215	2		524	549	455	18,868
Louisiana	725	354	367	1	3	403	323	524	938
Oklahoma	860	696	92	71	1	424	382	616	1,238
Texas	1,754	1,377	373	3	1	376	351	503	1,422
MOUNTAIN:									
Montana	180	138	2	40		328	258	1,206	3,651
Idaho	131	130		1		303	305		323
Wyoming	30	26		4		154	137		2,978
Colorado	706	681	21	2	2	751	737	1,855	1,446
New Mexico	552	504	1	46	1	1,532	1,506	174	2,358
Arizona	101	84	1	16		302	288	125	485
Utah	165	163		2		367	369		738
Nevada	41	19	1	21		530	269	2,890	4,280
PACIFIC:									
Washington	498	464	3	29	2	367	352	436	3,201
Oregon	354	339	1	11	3	452	441	466	2,397
California	1,504	1,399	33	56	16	439	429	851	3,226

[1] Chiefly Chinese and Japanese.

The divisions having the smallest ratios for Negro blind are, strangely enough, all in the South, none of these divisions having a ratio of over 600. Much the largest ratios appear in the West North Central and East North Central divisions, these having ratios of 1,102 and 962, respectively. Particularly high ratios for Negroes are found in Nevada, with 2,890; Colorado, with 1,855; Kansas, with 1,433; Kentucky, with 1,233; Massachusetts, with 1,210; Montana, with 1,206; Ohio, with 1,187; Indiana, with 1,176; and Wisconsin, with 1,154. Only one of these States is in the South, and that State is in fact a border State; the lowest ratios of all are in the three southern divisions, and the two divisions with the highest ratios are sections into which Negroes migrating from the South go in heavy numbers. It seems quite probable, therefore, that Negroes leaving the South succumb to diseases which produce blindness, or are subject to eye accidents in industry, to a greater extent than do those who remain in the South—a conclusion all the more reasonable when it is remembered that Negroes migrating from the South have, as a rule, a relatively high morbidity and mortality rate, at least during the earlier years in their new residence. The medical facilities more available generally in the North, especially in the large cities, seem not sufficient to counteract the tendencies to blindness. Very high ratios for the Indians are shown in one or two of the geographic divisions and in a number of States, indicating, probably, among some of the Indian population a state of weakness or debility and a considerable tendency toward blindness.

The ratios for the whites largely correspond with the ratios for the total blind population. There are larger ratios for Negroes than for whites in all the divisions and in all the States except Connecticut, West Virginia, Mississippi, Arkansas, New Mexico, and Arizona. In some of the areas where there is a higher proportion of blindness among whites it is probably due to the operation of a disease like trachoma, from which Negroes are largely immune.

In Table 12 is shown by race, and by nativity as well where possible, the percentage distribution of the general population, of the blind population as enumerated in 1920 and 1910, and of those returning special schedules in 1920, for the several geographic divisions.

In all divisions Negroes are proportionately more numerous among the blind than in the general population, the excess in 1920 being most pronounced in the two far western divisions, as well as in the Middle Atlantic division and the two North Central divisions, sections of the North to which Negroes have been coming in large numbers in recent years. In some divisions there seems to have been an increase in the proportion of Negro blind since 1910, and in others a decrease.

Considering those returning special schedules, the foreign-born whites have a higher proportion among the blind than among the general population in each division except the Middle Atlantic and West South Central. The proportions for the blind show the greatest excess in the West North Central and East South Central divisions. This is the more remarkable in the latter division because of the very small number of foreign born. All divisions except the South Atlantic indicate a decrease since 1910 in the proportion of the foreign born in the blind population.

In all divisions except the East South Central the proportion among native whites is larger in the general population than with the blind, though in all the proportion for the blind has increased since 1910.

TABLE 12.—PER CENT DISTRIBUTION OF BLIND POPULATION BY RACE AND NATIVITY, AS COMPARED WITH GENERAL POPULATION, BY GEOGRAPHIC DIVISIONS: 1920 AND 1910

[Base numbers for 1920 in Table 99, p. 170]

GEOGRAPHIC DIVISION, CLASS OF POPULATION, AND CENSUS YEAR	WHITE			Negro	Indian	Other colored
	Total	Native	Foreign-born			
United States:						
Total population: 1920	89.7	76.7	13.0	9.9	0.2	0.2
Blind population—						
Total enumerated: 1920	87.0	(1)	(1)	12.0	0.9	0.1
Returning special schedules: 1920	89.6	74.1	15.5	9.6	0.8	0.1
Total enumerated: 1910	83.1	65.7	17.4	15.5	1.4	0.1
New England:						
Total population: 1920	98.9	73.6	25.3	1.1	(2)	0.1
Blind population—						
Total enumerated: 1920	98.3	(1)	(1)	1.5	0.3	----
Returning special schedules: 1920	98.2	71.8	26.4	1.6	0.3	----
Total enumerated: 1910	98.3	68.7	29.6	1.6	(1)	(1)
Middle Atlantic:						
Total population: 1920	97.2	75.2	22.1	2.7	(2)	0.1
Blind population—						
Total enumerated: 1920	95.9	(1)	(1)	4.0	0.1	(2)
Returning special schedules: 1920	96.2	74.6	21.6	3.8	(2)	(2)
Total enumerated: 1910	96.0	67.7	28.3	3.8	(1)	(1)
East North Central:						
Total population: 1920	97.5	82.5	15.0	2.4	0.1	(2)
Blind population—						
Total enumerated: 1920	95.4	(1)	(1)	4.0	0.5	0.1
Returning special schedules: 1920	95.6	78.1	17.4	4.0	0.4	0.1
Total enumerated: 1910	96.2	73.0	23.2	3.4	(1)	(1)
West North Central:						
Total population: 1920	97.5	86.5	10.9	2.2	0.3	(2)
Blind population—						
Total enumerated: 1920	93.7	(1)	(1)	5.0	1.2	----
Returning special schedules: 1920	94.5	77.6	17.0	4.5	1.0	----
Total enumerated: 1910	93.2	70.8	22.5	4.9	(1)	(1)
South Atlantic:						
Total population: 1920	69.0	66.7	2.3	30.9	0.1	(2)
Blind population—						
Total enumerated: 1920	63.5	(1)	(1)	36.3	0.2	(2)
Returning special schedules: 1920	68.0	65.3	2.7	31.7	0.3	(2)
Total enumerated: 1910	58.3	55.8	2.5	41.6	(1)	(1)
East South Central:						
Total population: 1920	71.6	70.8	0.8	28.4	(2)	(2)
Blind population—						
Total enumerated: 1920	69.1	(1)	(1)	30.7	0.2	----
Returning special schedules: 1920	73.5	72.0	1.5	26.3	0.2	----
Total enumerated: 1910	63.8	61.8	2.1	36.1	(1)	(1)
West South Central:						
Total population: 1920	79.2	74.8	4.5	20.1	0.6	(2)
Blind population—						
Total enumerated: 1920	73.5	(1)	(1)	24.6	1.8	0.1
Returning special schedules: 1920	77.5	73.3	4.2	20.7	1.7	0.2
Total enumerated: 1910	68.9	61.0	7.8	29.3	(1)	(1)
Mountain:						
Total population: 1920	96.3	82.7	13.6	0.9	2.3	0.5
Blind population—						
Total enumerated: 1920	91.6	(1)	(1)	1.4	6.9	0.2
Returning special schedules: 1920	92.6	76.2	16.4	1.6	5.6	0.2
Total enumerated: 1910	80.2	62.2	18.1	1.0	(1)	(1)
Pacific:						
Total population: 1920	96.2	77.6	18.6	0.9	0.6	2.4
Blind population—						
Total enumerated: 1920	93.5	(1)	(1)	1.6	4.1	0.9
Returning special schedules: 1920	94.4	70.5	24.0	1.4	3.5	0.6
Total enumerated: 1910	89.4	62.1	27.3	1.6	(1)	(1)

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1 Less than one-tenth of 1 per cent.

Sex.—In Table 13 are presented for each sex the number and the percentage distribution by race of the blind enumerated in 1920, and the number of males per 100 females as compared with sex ratios in the general population.

TABLE 13.—TOTAL BLIND POPULATION, BY COLOR OR RACE AND SEX, FOR THE UNITED STATES: 1920

COLOR OR RACE	BLIND POPULATION				Males per 100 females in the general population of same race	EXCESS OF MALES PER 100 FEMALES IN BLIND POPULATION AS COMPARED WITH GENERAL POPULATION	
	Number		Per cent distribution		Males per 100 females	Number	Per cent
	Male	Female	Male	Female			
All classes	30,160	22,407	100.0	100.0	134.6	104.0	30.6	29.4
White	26,133	19,604	86.6	87.5	133.3	104.4	28.9	27.7
Negro	3,742	2,560	12.4	11.4	146.2	99.2	47.0	47.4
Indian	252	236	0.8	1.1	106.8	104.8	2.0	1.9
Other colored	33	7	0.1	(1)	(2)	288.6	-------	-------

[1] Less than one-tenth of 1 per cent.
[2] Ratio not shown, the number of females being less than 100.

Blind females are relatively more numerous among the whites and Indians, and blind males among the Negroes. Among all the blind there are 134.6 males to every 100 females; among whites there are 133.3; among Negroes, 146.2; and among Indians, 106.8. For blind Indians the sex ratio is little different from that for the general population of the country.

The greater relative frequency of blindness among Negro males may in some part be due to their greater liability to industrial accidents and to exposure to weather and other conditions which may have eventual injurious effects upon the eyesight, as well as to general health; but it is due in larger part, possibly, to the greater prevalence among them of venereal disease, which may result in blindness. Less liability to either of these conditions among Indians may account for the more normal ratio of males to females among the blind of that race.

Table 14 gives by race and nativity the number of blind males and of blind females returning special schedules, their percentage distribution, and the number of males per 100 females in 1920 and 1910.

TABLE 14.—BLIND POPULATION, BY SEX, RACE, AND NATIVITY, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

RACE AND NATIVITY	NUMBER, 1920		PER CENT DISTRIBUTION, 1920		MALES PER 100 FEMALES	
	Male	Female	Male	Female	1920	1910
All classes	23,977	16,936	100.0	100.0	141.6	142.0
White	21,330	15,310	89.0	90.4	139.3	139.2
Native	17,451	12,862	72.8	75.9	135.7	135.6
Foreign-born	3,879	2,448	16.2	14.5	158.5	155.8
Negro	2,442	1,494	10.2	8.8	163.5	160.2
Indian	182	126	0.8	0.7	144.4	192.9
Other colored	23	6	0.1	(1)	(2)	

[1] Less than one-tenth of 1 per cent.
[2] Ratio not shown, number of females being less than 100.

The ratio of males to females among the blind returning special schedules is somewhat greater than among the total enumerated. (See Table 13.) In the one case, as in the other, there is a greater proportion for females than for males among the white blind, and greater for males than for females among Negroes. Among foreign-born whites, however, the proportion for males is greater, in part because of the considerable excess of males among the foreign born generally and in part because of the special liability of males to eye accidents in industry. Since 1910 there has been an increase in the number of blind males per 100 females among both foreign-born whites and Negroes.

In Table 15 are shown, by race, the number of blind males and of blind females per million of the general population of the same sex and race, for the several geographic divisions.

TABLE 15.—TOTAL BLIND POPULATION, BY RACE AND SEX, PER MILLION OF THE GENERAL POPULATION OF SAME RACE AND SEX, BY GEOGRAPHIC DIVISIONS: 1920

GEOGRAPHIC DIVISION	All classes	White	Negro	Indian	Other colored
	MALE				
United States	560	540	718	2,015	244
New England	700	699	797	3,538	----------
Middle Atlantic	469	461	780	1,630	----------
East North Central	631	618	1,051	3,184	1,034
West North Central	546	527	1,203	1,902	380
South Atlantic	550	498	667	1,156	444
East South Central	649	606	759	7,026	----------
West South Central	465	424	599	1,408	2,048
Mountain	653	628	710	1,884	83
Pacific	489	482	680	3,137	211
	FEMALE				
United States	432	423	487	1,977	149
New England	571	564	977	11,534	----------
Middle Atlantic	372	369	458	2,089	695
East North Central	505	493	849	4,649	1,582
West North Central	424	406	994	2,181	----------
South Atlantic	407	381	462	593	3,497
East South Central	459	463	447	5,202	----------
West South Central	364	344	416	1,130	2,882
Mountain	476	445	1,084	1,537	581
Pacific	348	332	877	3,052	25

In the main these ratios correspond to the ratios for the blind of both sexes in the several divisions. Among whites in all divisions the ratio for males is higher than for females, and among Negroes as well in all except the New England, Mountain, and Pacific divisions. Among Indians the ratio for males is only slightly greater than for females for the country as a whole, while in the four northern and eastern divisions, in which the ratio for females is larger, the numbers reported are too small to have much significance. (See Table 11.)

AGE

In all efforts to meet the problems of the blind in human society a very important consideration is found to be their age. Individually, the question of age has definite and practical bearing upon the possibility of their engaging in remunerative employment; and, moreover, the figures showing the age distribution of the blind population have statistical and economic value as indicating the character and the extent of the assistance which should be accorded to them as a class.

Comparison with earlier censuses.—For comparative statistics of age the broad groupings adopted at earlier censuses have necessarily been adhered to; the known tendency in age reporting to concentrate on multiples of 5 and 10 has made it advisable occasionally to use these broad groupings, which reduce the effects of inaccuracies in reporting, in tables relating only to 1920; but in many of the tables ages for the blind are given in quinquennial periods extending even beyond the age at which there are any considerable proportions in the general population.

Table 16 gives the number of the blind at different age periods, according to the enumeration of 1920, together with the percentage distribution, and the number per million of general population of the same age, for 1920 and 1910; the percentage distribution of the general population in 1920 is also shown.

TABLE 16.—TOTAL BLIND POPULATION, BY AGE, AS COMPARED WITH AGE DISTRIBUTION OF THE GENERAL POPULATION, FOR THE UNITED STATES: 1920 AND 1910

AGE	BLIND POPULATION					Per cent distribution of general population, 1920
	Number, 1920	Number per million of general population of same age		Per cent distribution		
		1920	1910	1920	1910	
All ages	52,567	497	623			
Age reported	51,919	492	622	100.0	100.0	100.0
Under 5 years	367	32	52	0.7	1.0	11.0
Under 1 year	21	9	32	(1)	0.1	2.1
1 to 4 years	346	37	57	0.7	0.8	8.8
5 to 9 years	1,403	123	128	2.7	2.2	10.8
10 to 14 years	2,393	225	219	4.6	3.5	10.1
15 to 19 years	2,419	257	243	4.7	3.9	8.9
20 to 24 years	2,074	224	249	4.0	3.9	8.8
25 to 29 years	2,027	223	275	3.9	3.9	8.6
30 to 34 years	1,889	234	329	3.6	4.0	7.6
35 to 39 years	2,532	326	396	4.9	4.4	7.4
40 to 44 years	2,499	394	532	4.8	4.9	6.0
45 to 49 years	3,055	530	744	5.9	5.8	5.5
50 to 54 years	3,089	652	961	5.9	6.6	4.5
55 to 59 years	3,635	1,024	1,326	7.0	6.5	3.4
60 to 64 years	4,090	1,371	1,977	7.9	7.8	2.8
65 to 69 years	4,390	2,122	3,038	8.4	8.9	2.0
70 to 74 years	4,592	3,292	4,589	8.8	8.9	1.3
75 to 79 years	4,591	5,360	7,655	8.8	8.9	0.8
80 to 84 years	3,538	8,784	12,833	6.8	7.2	0.4
85 years and over	3,336	15,858	25,748	6.4	7.5	0.2
Age not reported	648					

[1] Less than one-tenth of 1 per cent.

The most striking feature of this table is seen to be the constantly increasing proportions of the blind with the advancing age periods of life. This fact is sharply brought out when contrast is made with the age distribution of the general

population. With the latter the heavy proportions are grouped in the early periods of life, steadily becoming less as the years progress. With the blind the reverse is the case.

The proportion of the blind in the tender years of infancy is very small. The numbers of the blind reported as under 1 year of age, however, are probably greatly understated. In many cases the existence of the defect is not recognized early; in other cases there is a reluctance to state that blindness occurred at birth or shortly after.

Through childhood and youth the proportion slowly increases. In early adult life, or from 20 to 34 years, there is a slight decline, but after 34 there is an increase up to extreme old age. This increase, continuing in practically every successive age period through life, is stopped only at the advanced age of 80, when the proportions are much larger than in the general population.

Much the greater numbers of the blind, accordingly, are found in adult life, especially in the later years, and most of all in those of advanced age. Indeed, so notable is the relative increase in the number of the blind in the higher age periods of life that blindness, while it may occur at any period of life, may well be regarded as a condition peculiarly incident to old age.

Statistically stated, there are found under 20 years, or in youth, almost exactly one-eighth (12.7 per cent) of the blind; from 20 to 59, or in the working period of life, two-fifths (40 per cent); and after 59, or in advanced life and old age, almost one-half (47.3 per cent). To present the matter differently, nearly nine-tenths (87.3 per cent) of the blind are 20 years of age or over; almost four-fifths (79.4 per cent), 30 or over; considerably over two-thirds (70.9 per cent), 40 or over; three-fifths (60.2 per cent), 50 or over; nearly one-half (47.3 per cent), 60 or over; over three-tenths (30.9 per cent), 70 or over; and about one-seventh (13.2 per cent), 80 and over.

The abnormal age composition of the blind may be brought into relief by the consideration that of the general population over two-fifths (40.8 per cent) are under 20, nearly three-fourths (73.2 per cent) under 40, over nine-tenths (92.6 per cent) under 60, and only 7.5 per cent 60 years or over.

The contrast between the two groups becomes even more marked when examination is made of the number of the blind per million of the general population of the same age. This ratio starts at 32 at the age group under 5 years, and rapidly mounts till at 85 and over it attains the enormous figure of 15,858.

There are several things to account for this distribution of the blind as to age, especially the decided concentration in advanced ages. Blindness results usually from certain disorders which of themselves are not likely to occasion death, and the number of persons blind at any given period is made up of those who have become blind at that time, plus all those who have become blind at preceding periods; there are thus increasingly large numbers of blind persons with advancing years. At the same time there are certain affections causing blindness which are peculiarly apt to befall persons in the later years of life, serving to swell the numbers of the blind in those years. These are especially cataract and glaucoma. The former disease is liable to induce blindness at any period of life, but its occurrence is generally associated with advanced years, "senile cataract" being a generic term for practically all cases of cataract which are not found at birth or which are not the direct result of some specific complaint.

In the age distribution of the blind in 1920 no great change since 1910 is found. A slight decrease is observed in the proportion of the blind under 5 years of age, a slight increase in the proportions from 5 to 24, inconsiderable differences from 25 to 64, and slight decreases from that time on. The decrease in the earlier period may to a large extent be ascribed to the present campaign against blind-

ness, which is having notable results from preventive work at birth or shortly after—a subject to be referred to more fully in a later section of this report.

In Table 17 are given for the several ages the number of the blind as enumerated and the per cent distribution, the number returning special schedules and the per cent distribution, together with the percentage which those returning special schedules constitute of the number enumerated.

TABLE 17.—AGE DISTRIBUTION OF THE TOTAL BLIND POPULATION AND OF BLIND PERSONS RETURNING SPECIAL SCHEDULES, FOR THE UNITED STATES: 1920 AND 1910

AGE	TOTAL ENUMERATED, 1920		RETURNING SPECIAL SCHEDULES				
	Number	Per cent distribution	Number, 1920	Per cent distribution		Per cent of total enumerated	
				1920	1910	1920	1910
All ages	52,567		40,913			77.8	51.1
Age reported	51,919	100.0	40,488	100.0	100.0	78.0	51.1
Under 5 years	367	0.7	220	0.5	0.7	59.9	37.7
Under 1 year	21	(1)	4	(1)	0.1	(2)	(2)
1 to 4 years	346	0.7	216	0.5	0.7	62.4	39.5
5 to 9 years	1,403	2.7	1,057	2.6	1.8	75.3	42.7
10 to 14 years	2,393	4.6	2,044	5.0	2.9	85.4	42.3
15 to 19 years	2,419	4.7	2,074	5.1	3.4	85.7	45.0
20 to 24 years	2,074	4.0	1,677	4.1	3.7	80.9	47.7
25 to 29 years	2,027	3.9	1,636	4.0	3.9	80.7	50.1
30 to 34 years	1,889	3.6	1,484	3.7	4.1	78.6	52.3
35 to 39 years	2,532	4.9	2,027	5.0	4.7	80.1	53.8
40 to 44 years	2,499	4.8	1,972	4.9	5.4	78.9	56.2
45 to 49 years	3,055	5.9	2,446	6.0	6.4	80.1	56.4
50 to 54 years	3,089	5.9	2,383	5.9	6.9	77.1	53.7
55 to 59 years	3,635	7.0	2,842	7.0	7.2	78.2	56.5
60 to 64 years	4,090	7.9	3,242	8.0	8.6	79.3	55.7
65 to 69 years	4,390	8.5	3,443	8.5	9.7	78.4	55.6
70 to 74 years	4,592	8.8	3,479	8.6	9.1	75.8	52.0
75 to 79 years	4,591	8.8	3,518	8.7	8.8	76.6	50.2
80 to 84 years	3,538	6.8	2,644	6.5	6.7	74.7	47.0
85 years and over	3,336	6.4	2,300	5.7	6.2	68.9	41.8
Age not reported	648		425			65.6	41.7

[1] Less than one-tenth of 1 per cent. [2] Per cent not shown, base being less than 100.

The correspondence between the two census years in the percentage distribution of the smaller groups returning special schedules appears to be rather close, on the whole. As found in the previous case, there is a decrease since 1910 in the proportion under 5 years of age, a rather considerable increase from this age to 29—the proportion almost doubling from 10 to 14—and a decrease at practically all the following age periods. How far the indicated increases of blindness in childhood and early adult life, appearing likewise in Table 16, are actually true can not altogether be determined. To some extent they are only the reflections of decreases at other times of life. The natural effect of the preventive campaign in childhood and youth would be to decrease proportions in the period just following, and this, together with the fact that with each succeeding census the blind group surviving is 10 years older, accounts to a large extent for the proportions at each age as contrasted with those of 1910 or earlier censuses.

The changes in the age distribution of the blind in different years is further brought out in Table 18, which gives, for different age periods, from 1860, the earliest year for which statistics as to age are available, up to 1920, the number of the blind, their percentage distribution by age, and the number per million of the general population of the same age.

TABLE 18.—TOTAL BLIND POPULATION, BY AGE, FOR THE UNITED STATES: 1860 TO 1920

AGE	BLIND POPULATION						
	1920	1910	1900	1890	1880	1870	1860
	NUMBER						
All ages	52,567	57,272	64,763	50,568	48,928	20,320	12,658
Under 5 years	367	551	645	763	934	319	322
Under 1 year	21	70	(1)	100	108	40	40
1 to 4 years	346	481	(1)	663	826	279	282
5 to 9 years	1,403	1,248	1,662	1,421	1,823	800	573
10 to 14 years	2,393	1,997	2,873	2,069	2,730	1,317	760
15 to 19 years	2,419	2,200	3,128	2,218	2,863	1,365	889
20 to 39 years	8,522	9,321	9,885	8,467	9,237	4,291	2,686
40 to 59 years	12,278	13,565	15,034	12,089	11,043	4,692	2,861
60 years and over	24,537	28,239	31,246	22,809	20,298	7,529	4,543
Age not reported	648	151	290	732	----------	7	24
	PER CENT DISTRIBUTION [2]						
All ages	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 5 years	0.7	1.0	1.0	1.5	1.9	1.6	2.5
Under 1 year	(3)	0.1	(1)	0.2	0.2	0.2	0.3
1 to 4 years	0.7	0.8	(1)	1.3	1.7	1.4	2.2
5 to 9 years	2.7	2.2	2.6	2.9	3.7	3.9	4.5
10 to 14 years	4.6	3.5	4.5	4.2	5.6	6.5	6.0
15 to 19 years	4.7	3.9	4.9	4.5	5.9	6.7	7.0
20 to 39 years	16.4	16.3	15.3	17.0	18.9	21.1	21.3
40 to 59 years	23.6	23.7	23.3	24.3	22.6	23.1	22.6
60 years and over	47.3	49.4	48.5	45.8	41.5	37.1	36.0
	NUMBER PER MILLION OF GENERAL POPULATION OF SAME AGE						
All ages	497	623	852	808	976	527	403
Under 5 years	32	52	70	100	135	58	66
Under 1 year	9	32	(1)	64	75	36	43
1 to 4 years	37	57	(1)	109	151	63	72
5 to 9 years	123	128	187	188	281	166	137
10 to 14 years	225	219	356	294	478	275	204
15 to 19 years	257	243	414	338	571	338	264
20 to 39 years	249	305	405	426	594	367	276
40 to 59 years	602	826	1,169	1,219	1,440	814	681
60 years and over	3,100	4,542	6,414	5,886	7,178	3,896	3,370

[1] Separate figures not available.
[2] Based upon the population whose age was reported.
[3] Less than one-tenth of 1 per cent.

For the blind under 5 years of age and for both the included periods (under 1 year and 1 to 4 years) there is a constant diminution in the proportions. In 1860 the proportion under 5 constituted 2.5 per cent; in 1920, 0.7 per cent. This can mean nothing else than that perceptible headway is being made in the campaign against blindness, just referred to, in which special emphasis is placed upon the prevention of blindness appearing at birth or shortly thereafter—such blindness usually resulting from ophthalmia neonatorum—and preventive means for the blindness resulting from other affections of infancy and childhood. For the ages 5 to 19 a general decrease is also noted from 1860 to 1910, but, as in the previous tables, an increase between 1910 and 1920. From 20 to 39 years there is generally a decrease to 1900, and then a slight increase to 1920. From 40 to 59 years there is no great change on the whole. For the period over 59 there are increases until 1910, and a decrease to 1920, largely resulting from the changes for the earlier age periods.

A very influential factor in reducing the proportions of the blind at the earlier ages of life consists in the changes in the age distribution of the general population, the increasing age among the blind being to a considerable extent a reflection of the similar increase among the population as a whole. The total population from census to census contains larger and larger proportions of persons in advanced years, a condition arising from the general tendency toward longevity. Because of the greater number of persons in advanced years, there will presumably be a greater number upon whom blindness may fall, as blindness is especially liable to come in the later years of life, thus naturally enlarging the proportions of the blind among persons in such advanced years. Furthermore, the increase in the proportions of the blind at such ages will proceed much more rapidly than in the proportions of the population as a whole. Finally, as efforts toward the diminution of blindness at earlier years are attended with a larger and larger degree of success, resulting in smaller proportions of the blind at those ages, the proportions for those in older years are correspondingly increased.

When comparison is made of the ratios to the total population at different censuses—which should be the best method of comparison if all of the enumerations had been equally complete—some variations from the foregoing results are shown. Though there has been an increase in the ratio of blind of all ages up to 1880, the year, it should be noted, when the first efficacious measures for dealing with infant blindness were discovered, yet from that time there has been a general diminution down to the present. Among children under 9 years of age there has been a steady decrease. From 10 to 19 there has been alternate increase and decrease at the different censuses, with a slight increase from 1910 to 1920. From 20 onward there have been unbroken decreases at each age period. As between 1880 and 1920, the ratio of the blind to the total population, at every age period, is less than one-half at the later census of what it was at the earlier. For the period under 5, the ratio has been reduced to less than one-fourth that of 1880. It is safe to assume that blindness is being reduced at all age periods, and very pronouncedly in infancy and early childhood.

The relation of the changes in age of the blind population to the changes in the total population is further brought out in Table 19, which gives the median ages of both groups for the census years from 1860 to 1920.

TABLE 19.—MEDIAN AGE OF THE TOTAL BLIND POPULATION, AS COMPARED WITH THAT OF THE GENERAL POPULATION, FOR THE UNITED STATES: 1860 TO 1920

GROUP	MEDIAN AGE [1]						
	1920	1910	1900	1890	1880	1870	1860
Blind population	58.0	59.6	58.9	56.7	52.3	49.0	47.7
Total population	25.2	24.0	22.9	21.4	20.9	20.1	19.4

[1] Based upon the population whose age was reported.

Each group tends to become an older one with the lapse of the years and in fairly parallel lines, the median age of the blind always being more than double that of the general population, or averaging a little over 30 years in excess. The median age of the blind since 1860 has been increased by 10.3 years and of the general population by 5.8 years.

From all that has been shown it may well be concluded that blindness is declining among all age groups of the population, with the possible exception of youth. If there is really an increase in blindness from 10 to 19 years of age, it is occasioned, in all likelihood, by an increase in eye accidents at this time of life. That blindness from diseases is being overcome we can hardly doubt; but with the industrial activities of the country developing at a rapid rate, and with the

industrial hazards, including those to the eye, increasing more and more, there is ever present danger of blindness therefrom. Over against this industrial growth must be set the constantly increasing efforts to promote safety, both by education and by the installation of proper safeguards. It may even be said that there is a race in the United States, between industrial expansion and safety measures, but of the eventual ascendancy of the latter there is every assurance.

Geographic divisions.—In Table 20 are shown the number and the percentage distribution of the blind population in 1920, according to the several age periods, for the different geographic divisions of the United States.

TABLE 20.—TOTAL BLIND POPULATION, BY AGE, BY GEOGRAPHIC DIVISIONS: 1920

AGE	GEOGRAPHIC DIVISIONS									
	United States	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
	NUMBER									
All ages	52,567	4,699	9,374	12,234	6,111	6,694	4,935	4,258	1,906	2,356
Under 20 years	6,582	483	1,155	1,399	708	1,040	712	589	253	243
Under 5 years	367	31	53	62	47	79	42	28	13	12
5 to 9 years	1,403	102	241	301	159	229	145	127	51	48
10 to 14 years	2,393	168	453	516	257	346	249	225	93	86
15 to 19 years	2,419	182	408	520	245	386	276	209	96	97
20 to 59 years	20,800	1,741	3,847	4,641	2,275	2,942	1,986	1,753	692	923
20 to 29 years	4,101	307	754	836	430	709	401	379	132	153
30 to 39 years	4,421	344	757	956	488	700	453	386	143	194
40 to 49 years	5,554	466	1,054	1,252	584	761	527	486	176	248
50 to 59 years	6,724	624	1,282	1,597	773	772	605	502	241	328
60 years and over	24,537	2,417	4,254	6,062	3,060	2,638	2,155	1,865	936	1,150
60 to 69 years	8,480	784	1,574	2,059	1,022	870	726	703	332	410
70 to 79 years	9,183	938	1,588	2,248	1,125	1,020	805	685	360	414
80 years and over	6,874	695	1,092	1,755	913	748	624	477	244	326
Age not reported	648	58	118	132	68	74	82	51	25	40
	PER CENT DISTRIBUTION [1]									
All ages	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 20 years	12.7	10.4	12.5	11.6	11.7	15.7	14.7	14.0	13.5	10.5
Under 5 years	0.7	0.7	0.6	0.5	0.8	1.2	0.9	0.7	0.7	0.5
5 to 9 years	2.7	2.2	2.6	2.5	2.6	3.4	3.0	3.0	2.7	2.1
10 to 14 years	4.6	3.6	4.9	4.3	4.3	5.2	5.1	5.3	4.9	3.7
15 to 19 years	4.7	3.9	4.4	4.3	4.1	5.8	5.7	5.0	5.1	4.2
20 to 59 years	40.1	37.5	41.6	38.3	37.6	44.4	40.9	41.7	36.8	39.9
20 to 29 years	7.9	6.6	8.1	6.9	7.1	10.7	8.3	9.0	7.0	6.6
30 to 39 years	8.5	7.4	8.2	7.9	8.1	10.6	9.3	9.2	7.6	8.4
40 to 49 years	10.7	10.0	11.4	10.3	9.7	11.5	10.9	11.6	9.4	10.7
50 to 59 years	13.0	13.4	13.9	13.2	12.8	11.7	12.5	11.9	12.8	14.2
60 years and over	47.3	52.1	46.0	50.1	50.6	39.8	44.4	44.3	49.8	49.7
60 to 69 years	16.3	16.9	17.0	17.0	16.9	13.1	15.0	16.7	17.7	17.7
70 to 79 years	17.7	20.2	17.2	18.6	18.6	15.4	16.6	16.3	19.1	17.9
80 years and over	13.2	15.0	11.8	14.5	15.1	11.3	12.9	11.3	13.0	14.1

[1] Based upon the population whose age was reported.

The proportions for these divisions at different ages manifest fairly close resemblances. The greatest proportions in youth, or under 20 years, are found in the three southern divisions. A proportion above the country's average for that age is also found in the Mountain division. The lowest proportions for this period of life are in the New England and Pacific divisions. The highest proportions in early and middle adult life, or from 20 to 59, are in the three southern divisions and the Middle Atlantic division, the Mountain division having the lowest proportion for this age. The highest proportions in advanced life, 60 years and over, are generally in the divisions having low proportions in the younger periods. The New England division and the two North Central divisions each have more than one-half their blind population 60 years of age or over.

The distribution of the blind population by age in the different sections of the country is to a considerable extent a reflection of the distribution by age of the population as a whole. At some periods of life the ratios are considerably affected by the proportions in the total population of the foreign born, or of Negroes or Indians, among whom blindness may fall more heavily or less heavily at certain ages; by the extent to which different sections of the country are given over to industrial activities likely to cause injuries to the sight in later youth and early middle life; and by the extent to which certain diseases causing blindness are relatively prevalent or are endemic in given areas.

Sex.—In Table 21 are shown, by rather broad age groupings, the number of the blind of each sex, together with the percentage distribution for 1920 and 1910, and the percentage distribution for the general population.

In the whole period of childhood and youth, or under 20 years of age, the proportion for females among the blind is slightly greater than for males, though up to 10 years the proportions are exactly the same. For males the percentage under 20 is 12.4 and for females 13. At each period after the twentieth year the proportion for males rises rapidly, and remains higher than that for females up to the sixtieth year. For this period, from 20 to 59 years, the practical working period of life, the proportion for males is over two-fifths (43.2 per cent) as against a little over one-third (35.8 per cent) for females. For the period of life over 59, or during advanced years and old age, females are in the ascendancy, with a little over one-half (51.2 per cent), as against somewhat under one-half (44.3 per cent) for males. The median age for blind males is 56.3 and blind females 60.8.

The larger proportion for females than for males under 20 is mainly a reflection of conditions with the general population at this period. The larger proportion for males in early and middle adult life, or between 20 and 59, is in part due to differences in the proportion of the sexes among the population as a whole; more particularly is it due to the greater liability of males at these ages to accidents occurring in industrial processes, these accidents including injuries to the eye, and also, to a certain extent, to accidents occurring in sports and amusements, males being the more active and adventurous in this regard. A contributing factor is doubtless the greater prevalence among males of venereal diseases which have considerable connection with certain kinds of blindness, and which would have most pronounced effects at this period of life. The differences between the proportions for the two sexes are notably greater with the blind than with the general population from 20 to 39. In the general population the proportion for females remains in the lead up to 30 years; with the blind the lead passes to males at 20. The larger proportions for females at 60 and over, or in advanced life and old age, are in part to be ascribed to the generally greater longevity of females, in part to their greater susceptibility to two diseases incident to old age, cataract and glaucoma.

The relative proportions for the two sexes in 1920 and in 1910 show very close resemblances. Within this 10-year period there has been a slight increase in the proportions for both males and females under 20 and a slight decrease at 60 and over, while the proportions from 20 to 59 remain practically the same.

In Table 22 are shown, by quinquennial age groupings, the number of males and of females as enumerated and the number and the percentage distribution for those returning special schedules, together with the percentage which the latter group constitutes of the former. The proportions for the two sexes at the different ages present little differences from the proportions already found.

TABLE 21.—TOTAL BLIND POPULATION, BY AGE AND SEX, FOR THE UNITED STATES: 1920 AND 1910

AGE	NUMBER, 1920		PER CENT DISTRIBUTION				PER CENT DISTRIBUTION OF THE GENERAL POPULATION, 1920	
			1920		1910			
	Male	Female	Male	Female	Male	Female	Male	Female
All ages	30,160	22,407						
Age reported	29,808	22,111	100.0	100.0	100.0	100.0	100.0	100.0
Under 20 years	3,704	2,878	12.4	13.0	10.2	10.9	40.2	41.3
Under 5 years	214	153	0.7	0.7	0.9	1.0	10.9	11.0
5 to 9 years	811	592	2.7	2.7	2.1	2.3	10.7	10.9
10 to 14 years	1,353	1,040	4.5	4.7	3.4	3.6	10.0	10.2
15 to 19 years	1,326	1,093	4.4	4.9	3.8	4.0	8.7	9.2
20 to 59 years	12,890	7,910	43.2	35.8	43.6	35.5	52.2	51.2
20 to 29 years	2,373	1,728	8.0	7.8	8.1	7.6	16.8	18.0
30 to 39 years	2,691	1,730	9.0	7.8	9.3	7.3	15.2	14.8
40 to 49 years	3,573	1,981	12.0	9.0	12.1	8.9	12.0	11.0
50 to 59 years	4,253	2,471	14.3	11.2	14.0	11.7	8.2	7.5
60 years and over	13,214	11,323	44.3	51.2	46.3	53.6	7.6	7.4
60 to 69 years	4,840	3,640	16.2	16.5	17.0	16.5	4.9	4.6
70 to 79 years	4,999	4,184	16.8	18.9	17.1	19.0	2.1	2.2
80 years and over	3,375	3,499	11.3	15.8	12.2	18.1	0.5	0.6
Age not reported	352	296						

TABLE 22.—AGE DISTRIBUTION OF THE TOTAL BLIND POPULATION AND OF BLIND PERSONS RETURNING SPECIAL SCHEDULES, BY SEX, FOR THE UNITED STATES: 1920

AGE	TOTAL ENUMERATED		RETURNING SPECIAL SCHEDULES					
			Number		Per cent distribution		Per cent of total enumerated	
	Male	Female	Male	Female	Male	Female	Male	Female
All ages	30,160	22,407	23,977	16,936			79.5	75.6
Age reported	29,808	22,111	23,749	16,739	100.0	100.0	79.7	75.7
Under 5 years	214	153	126	94	0.5	0.6	58.9	61.4
Under 1 year	13	8	1	3	(1)	(1)	(2)	(2)
1 to 4 years	201	145	125	91	0.5	0.5	62.2	62.8
5 to 9 years	811	592	600	457	2.5	2.7	74.0	77.2
10 to 14 years	1,353	1,040	1,154	890	4.9	5.3	85.3	85.6
15 to 19 years	1,326	1,093	1,127	947	4.7	5.7	85.0	86.6
20 to 24 years	1,171	903	951	726	4.0	4.3	81.2	80.4
25 to 29 years	1,202	825	986	650	4.2	3.9	82.0	78.8
30 to 34 years	1,108	781	872	612	3.7	3.7	78.7	78.4
35 to 39 years	1,583	949	1,289	738	5.4	4.4	81.4	77.8
40 to 44 years	1,596	903	1,292	680	5.4	4.1	81.0	75.3
45 to 49 years	1,977	1,078	1,610	836	6.8	5.0	81.4	77.6
50 to 54 years	1,982	1,107	1,564	819	6.6	4.9	78.9	74.0
55 to 59 years	2,271	1,364	1,827	1,015	7.7	6.1	80.4	74.4
60 to 64 years	2,354	1,736	1,910	1,332	8.0	8.0	81.1	76.7
65 to 69 years	2,486	1,904	2,039	1,404	8.6	8.4	82.0	73.7
70 to 74 years	2,521	2,071	1,999	1,480	8.4	8.8	79.3	71.5
75 to 79 years	2,478	2,113	1,955	1,563	8.2	9.3	78.9	74.0
80 to 84 years	1,834	1,704	1,380	1,264	5.8	7.6	75.2	74.2
85 years and over	1,541	1,795	1,068	1,232	4.5	7.4	69.3	68.6
Age not reported	352	296	228	197			64.8	66.6

[1] Less than one-tenth of 1 per cent.

[2] Per cent not shown, base being less than 100.

In Table 23 are given for 5-year age periods the number of blind males and of blind females, the number per million of general population of the same sex and the same age in 1920 and 1910, and the number of males per 100 females as compared with the sex ratio in the general population.

TABLE 23.—TOTAL BLIND POPULATION, BY AGE AND SEX, WITH SEX RATIOS FOR THE BLIND AND FOR THE GENERAL POPULATION, FOR THE UNITED STATES: 1920 AND 1910

AGE	BLIND POPULATION								Males per 100 females in the general population, 1920	EXCESS OF MALES PER 100 FEMALES IN BLIND POPULATION AS COMPARED WITH GENERAL POPULATION, 1920[2]	
	Number, 1920		Number per million of general population				Males per 100 females[1]				
			1920		1910						
	Male	Female	Male	Female	Male	Female	1920	1910		Number	Per cent
All ages	30,160	22,407	560	432	685	556	134.6	130.7	104.0	30.6	29.4
Under 5 years	214	153	37	27	55	48	139.9	117.8	102.5	37.4	36.5
Under 1 year	13	8	11	7	28	35	-------	-------	102.4	-------	-------
1 to 4 years	201	145	43	32	62	52	138.6	123.7	102.5	36.1	35.2
5 to 9 years	811	592	141	105	136	119	137.0	116.7	101.9	35.1	34.4
10 to 14 years	1,353	1,040	252	197	241	197	130.1	124.6	101.8	28.3	27.8
15 to 19 years	1,326	1,093	284	230	269	216	121.3	124.0	98.3	23.0	23.4
20 to 24 years	1,171	903	259	190	277	220	129.7	128.7	95.3	34.4	36.1
25 to 29 years	1,202	825	265	181	319	227	145.7	151.9	99.8	45.9	46.0
30 to 34 years	1,108	781	268	198	387	264	141.9	161.8	104.8	37.1	35.4
35 to 39 years	1,583	949	389	256	476	306	166.8	173.2	110.1	56.7	51.5
40 to 44 years	1,596	903	486	295	641	408	176.7	176.9	107.4	69.3	64.5
45 to 49 years	1,977	1,078	634	407	895	573	183.4	177.8	117.8	65.6	55.7
50 to 54 years	1,982	1,107	782	503	1,089	810	179.0	158.5	115.3	63.7	55.2
55 to 59 years	2,271	1,364	1,208	817	1,507	1,118	166.5	154.5	112.6	53.9	47.9
60 to 64 years	2,354	1,736	1,488	1,239	2,156	1,781	135.6	132.8	112.9	22.7	20.1
65 to 69 years	2,486	1,904	2,302	1,926	3,403	2,651	130.6	136.0	109.2	21.4	19.6
70 to 74 years	2,521	2,071	3,569	3,007	4,911	4,262	121.7	117.2	102.6	19.1	18.6
75 to 79 years	2,478	2,113	5,900	4,840	8,346	6,973	117.3	118.0	98.2	21.1	21.9
80 to 84 years	1,834	1,704	9,865	7,857	13,243	12,458	107.6	97.3	85.7	21.9	25.6
85 years and over	1,541	1,795	16,918	15,049	25,454	25,989	85.8	80.2	76.4	9.4	12.3
Age not reported	352	296	3,790	5,302	-------	-------	118.9	-------	166.4	−47.5	−28.5

[1] Ratio not shown, where number of females is less than 100.
[2] A minus sign (−) indicates a greater excess of males in the general population.

The net results here are much the same as in the preceding tables. At every age in 1920 the ratio of the blind to the total population is seen to be greater with males than with females, the excess of males among the blind being greatest in the neighborhood of 40 or 50 years, near the peak of the working period of life.

In Table 24 is given, for both sexes and for males and females separately, the ratio of the blind at different ages to the general population of the same sex and age, in the several geographic divisions of the country.

TABLE 24.—TOTAL BLIND POPULATION, BY AGE AND SEX, PER MILLION OF THE GENERAL POPULATION OF SAME AGE AND SEX, BY GEOGRAPHIC DIVISIONS: 1920

GEOGRAPHIC DIVISION AND SEX	Total [1]	Under 5 years	5 to 9 years	10 to 19 years	20 to 44 years	45 to 64 years	65 years and over
United States	497	32	123	240	272	814	4,145
Male	560	37	141	267	324	942	4,374
Female	432	27	105	213	218	668	3,913
New England	635	41	145	282	296	918	4,702
Male	700	47	165	295	359	1,084	5,133
Female	571	35	126	269	235	749	4,337
Middle Atlantic	421	23	108	223	220	696	3,410
Male	469	24	117	242	269	822	3,645
Female	372	21	97	205	170	562	3,203
East North Central	570	28	142	276	276	881	4,497
Male	631	32	158	291	318	1,019	4,823
Female	505	24	125	261	230	726	4,168
West North Central	487	35	121	210	247	757	3,960
Male	546	40	134	233	276	861	4,231
Female	424	30	108	186	218	633	3,657
South Atlantic	478	45	131	241	357	825	4,005
Male	550	54	159	296	441	979	3,956
Female	407	36	104	186	277	644	4,055
East South Central	555	39	129	263	357	1,015	4,916
Male	649	42	159	302	459	1,189	5,099
Female	459	35	97	224	261	806	4,719
West South Central	416	23	99	188	262	873	4,251
Male	465	26	114	207	305	943	4,248
Female	364	20	83	169	218	782	4,253
Mountain	571	33	136	304	268	1,002	6,464
Male	653	45	158	344	306	1,112	6,638
Female	476	20	113	264	221	844	6,229
Pacific	423	25	100	213	200	579	3,204
Male	489	37	107	246	247	656	3,417
Female	348	13	81	179	146	479	2,946

[1] Includes those whose age was not reported.

Considerable variations are found between different sections and, at certain ages, between the two sexes. In no small degree these variations may be induced by the extent to which the factor of race and nativity enters and by the extent to which industrial operations are carried on in particular areas.

Race.—Table 25 gives the number of the blind for the several racial groups according o age, together with the percentage distribution for 1920 and 1910.

The highest proportion under 20 years of age is for whites (13.1 per cent), followed by that for Negroes (10 per cent), and that for other colored, mostly Indians (9.5 per cent). The differences for the several groups probably reflect to a considerable extent the incidence of blindness from certain diseases at this time of life. In the period from 20 to 59, or during early and middle adult life, Negroes are first, almost one-half (48.6 per cent) of them being of such age. Practically two-fifths (39 per cent) of whites and one-third (33.3 per cent) of other colored are found at this period. The reason for the larger proportion of Negroes is doubtless that a relatively smaller proportion of Negroes live to advanced years. In the period 60 years and over, or in late adult life, including old age, "other colored" have the largest proportion, or almost three-fifths (57.2 per cent). Whites have a proportion of nearly one-half (48 per cent) and Negroes of slightly over two-fifths (41.3 per cent). The high proportion for other colored in advanced years is to some extent explained by the relatively advanced age generally attained by Indians.

While there is a considerable resemblance between the figures for 1920 and those for 1910, yet among whites and colored other than Negroes there are in 1920 slightly increased proportions in youth, and among Negroes in middle life. For all three classes there is a decrease in the proportions for the older groups

TABLE 25.—TOTAL BLIND POPULATION, BY COLOR OR RACE AND AGE, FOR THE UNITED STATES: 1920 AND 1910

AGE	NUMBER, 1920					PER CENT DISTRIBUTION							
						1920				1910			
	All classes	White	Negro	Indian	Other colored [1]	All classes	White	Negro	Other colored [2]	All classes	White	Negro	Other colored [2]
All ages	52,567	45,737	6,302	488	40								
Age reported	51,919	45,222	6,190	467	40	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 20 years	6,582	5,912	622	41	7	12.7	13.1	10.0	9.5	10.5	10.6	10.0	7.6
Under 5 years	367	323	37	6	1	0.7	0.7	0.6	1.4	1.0	1.0	0.6	1.0
5 to 9 years	1,403	1,255	140	7	1	2.7	2.8	2.3	1.6	2.2	2.3	1.9	1.3
10 to 14 years	2,393	2,167	210	13	3	4.6	4.8	3.4	3.2	3.5	3.5	3.4	2.4
15 to 19 years	2,419	2,167	235	15	2	4.7	4.8	3.8	3.4	3.9	3.8	4.1	2.6
20 to 59 years	20,800	17,620	3,011	156	13	40.1	39.0	48.6	33.3	40.1	39.1	45.6	33.8
20 to 29 years	4,101	3,526	542	32	1	7.9	7.8	8.8	6.5	7.9	7.5	10.3	5.0
30 to 39 years	4,421	3,720	675	23	3	8.5	8.2	10.9	5.1	8.4	8.1	10.4	6.9
40 to 49 years	5,554	4,625	885	40	4	10.7	10.2	14.3	8.7	10.7	10.6	11.6	10.8
50 to 59 years	6,724	5,749	909	61	5	13.0	12.7	14.7	13.0	13.0	13.0	13.3	11.1
60 years and over	24,537	21,690	2,557	270	20	47.3	48.0	41.3	57.2	49.4	50.2	44.4	58.7
60 to 69 years	8,480	7,492	893	85	10	16.3	16.6	14.4	18.7	16.8	17.2	14.5	19.1
70 to 79 years	9,183	8,189	898	90	6	17.7	18.1	14.5	18.9	17.9	18.6	14.0	16.7
80 years and over	6,874	6,009	766	95	4	13.2	13.3	12.4	19.5	14.8	14.4	15.9	22.8
Age not reported	648	515	112	21									

[1] Chiefly Chinese and Japanese. [2] Includes Indians.

Table 26 gives for the blind persons returning special schedules the per cent distribution by age, for both sexes and for each sex separately, according to race and nativity, the whites being distinguished as native and foreign born.

The highest proportion of the blind in childhood and youth is found among native whites, and the lowest among foreign-born whites. The highest proportion in early and middle adult life is found among Negroes and the lowest among oreign-born whites. The highest proportion in advanced life is found among foreign-born whites and the lowest among Negroes. Of foreign-born whites, all but 2 per cent are in adult life, two-thirds being 60 and over. The proportion for this group increases constantly with advancing years. Among native whites the proportion in youth and childhood is relatively very high, reaching 16.2 per cent. The condition as to age of foreign-born whites is readily understood when we remember that, apart from the relatively large number of persons of older years in the foreign-born population in general, very few blind children come to the United States as immigrants, by reason of the added economic difficulties to be encountered here by persons without sight; even before the quota limitations, the law forbade the entry of aliens suffering from a dangerous contagious disease, specifying trachoma, and debarred those liable to become public charges. Most of the blindness of the foreign born, therefore, occurs after their arrival in this country, a large part being occasioned by industrial accidents in adult life. As a result of these circumstances, there is an accumulation of the blind of foreign birth in the later years of life.

TABLE 26.—BLIND POPULATION BY SEX, RACE, AND NATIVITY—PER CENT DISTRIBUTION BY AGE, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules. Base numbers in Table 100, p. 172]

AGE	PER CENT DISTRIBUTION [1]					
	All classes	White			Negro	Indian
		Total	Native	Foreign-born		
	BOTH SEXES					
All ages	100.0	100.0	100.0	100.0	100.0	100.0
Under 20 years	13.3	13.7	16.2	2.0	9.8	9.5
Under 5 years	0.5	0.6	0.7	----	0.3	0.7
5 to 9 years	2.6	2.7	3.2	0.2	1.8	1.0
10 to 14 years	5.0	5.2	6.2	0.7	3.3	3.7
15 to 19 years	5.1	5.2	6.1	1.1	4.3	4.1
20 to 59 years	40.7	39.7	41.5	31.3	50.4	34.5
20 to 29 years	8.2	8.2	9.5	2.1	8.2	7.1
30 to 39 years	8.7	8.4	9.1	5.1	11.1	6.8
40 to 49 years	10.9	10.4	10.7	9.3	15.6	8.8
50 to 59 years	12.9	12.7	12.2	14.9	15.4	11.8
60 years and over	46.0	46.6	42.3	66.8	39.8	56.1
60 to 69 years	16.5	16.6	15.8	20.4	15.3	18.2
70 to 79 years	17.3	17.6	15.8	26.4	14.1	17.9
80 years and over	12.2	12.3	10.7	20.0	10.4	19.9
	MALE					
All ages	100.0	100.0	100.0	100.0	100.0	100.0
Under 20 years	12.7	13.1	15.6	1.8	9.0	5.8
Under 5 years	0.5	0.6	0.7	----	0.3	0.6
5 to 9 years	2.5	2.6	3.2	0.2	1.7	1.2
10 to 14 years	4.9	5.1	6.1	0.6	3.2	1.7
15 to 19 years	4.7	4.9	5.7	1.1	3.9	2.3
20 to 59 years	43.8	42.5	44.0	35.7	54.8	44.2
20 to 29 years	8.2	8.1	9.5	2.0	8.4	8.1
30 to 39 years	9.1	8.8	9.5	5.9	11.6	7.6
40 to 49 years	12.2	11.6	11.9	10.5	17.3	12.8
50 to 59 years	14.3	13.9	13.2	17.3	17.5	15.7
60 years and over	43.6	44.4	40.3	62.5	36.2	50.0
60 to 69 years	16.6	16.7	15.8	20.7	15.8	19.2
70 to 79 years	16.7	17.1	15.2	25.4	13.1	15.7
80 years and over	10.3	10.6	9.3	16.3	7.3	15.1
	FEMALE					
All ages	100.0	100.0	100.0	100.0	100.0	100.0
Under 20 years	14.3	14.6	17.0	2.1	11.0	14.5
Under 5 years	0.6	0.6	0.7	----	0.4	0.8
5 to 9 years	2.7	2.8	3.3	0.2	2.1	0.8
10 to 14 years	5.3	5.5	6.4	0.7	3.6	6.5
15 to 19 years	5.7	5.7	6.6	1.2	4.9	6.5
20 to 59 years	36.3	35.8	38.0	24.3	43.1	21.0
20 to 29 years	8.2	8.3	9.4	2.1	8.0	5.6
30 to 39 years	8.1	7.9	8.6	3.8	10.3	5.6
40 to 49 years	9.1	8.7	9.0	7.3	12.8	3.2
50 to 59 years	11.0	10.9	10.9	11.0	12.0	6.5
60 years and over	49.4	49.6	45.1	73.6	45.9	64.5
60 to 69 years	16.3	16.5	15.9	19.9	14.7	16.9
70 to 79 years	18.2	18.4	16.6	27.9	15.8	21.0
80 years and over	14.9	14.8	12.7	25.8	15.4	26.6

[1] Based upon the number whose age was reported.

When comparison is made of the distribution by age of males and of females in the several race and nativity groups, there appear notable differences in the case of the Negroes and Indians, and to a less extent in the case of foreign-born whites. With the latter group there is a relatively larger proportion of females in advanced years, a situation due somewhat to the younger age of males among the foreign born generally; another factor is the greater incidence of blindness from accidents to males at earlier years. With Negroes there is, relatively, an excess of males in early and middle adult life and of females in later years—a situation the more striking because of the slightly larger proportion of males in advanced years among Negroes in the total population and because of the comparatively reduced liability to industrial accidents of males of this race. The explanation probably lies in the effect which venereal disease has on the situation, this being more pronounced among males at the period of life in question. With Indians there is, relatively, a considerable excess for females in childhood and youth, for males in early and middle adult life, and for females in late adult life. The large proportion of blindness among male Indians at 20 to 59 years may perhaps be accounted for to some extent on the same grounds as is the large proportion for male Negroes at such time, and also to greater exposure to other diseases, particularly trachoma, at this stage of life.

In Table 27 is given the median age for the several racial groups, and for each sex separately among them, both in the general population and in the blind population in 1920 and 1910.

TABLE 27.—MEDIAN AGE OF THE TOTAL BLIND POPULATION, BY SEX AND RACE, AS COMPARED WITH THAT OF THE GENERAL POPULATION, FOR THE UNITED STATES: 1920 AND 1910

COLOR OR RACE	MEDIAN AGE [1]								
	General population, 1920			Blind population					
				1920			1910		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All classes	25.2	25.8	24.7	58.0	56.3	60.8	59.6	57.3	62.3
White	25.6	26.1	25.1	58.5	56.9	60.9	60.1	58.1	62.5
Negro	22.3	22.8	22.0	53.8	52.1	58.1	55.4	52.4	60.8
Indian	19.7	20.4	19.0	65.3	61.3	68.0	64.7	63.7	66.1
Other colored	32.4	35.9	23.5	60.0	58.1	[2]			

[1] Based upon the population whose age was reported.
[2] Ratio not given, by reason of the small number of blind involved.

Excepting other colored, the median age for the blind is at least twice as high as for the population at large. The greatest difference is in the case of Indians, the median age being more than three times as great for the one group as for the other. The median age for the blind in this race is 65.3 years—for females it is even higher, being 68—while the median age for Indians as a whole is only 19.7, the lowest of any group. The median age of the white blind is 58.5 and of the Negro 53.8, the difference between them corresponding somewhat to the differences in the median age of the two groups in the general population. The median age is higher for females than for males in all groups of the blind, the difference being particularly great in the case of Negroes and Indians. Since 1910 there has been a slight decrease in the median age of each of the groups.

AGE WHEN VISION WAS LOST

No affliction in human society is so greatly influenced with respect to the time of life at which it occurs as blindness. The determination of the age when loss of sight took place is of paramount practical importance in showing along what lines it is necessary to proceed in a combat to end blindness and is of hardly less moment in planning any economic programs for the blind, utilizing or extending whatever industrial possibilities remain to them.

In the tabulation of the returns on this subject, derived from the inquiries on the special schedules, significant groupings of ages, instead of single years, have been adopted to indicate the incidence of blindness at various periods of life.

Sex.—In Table 28 are given for both sexes, and for males and females separately, the number and the percentage distribution of the blind who returned special schedules, and the ratio of males to females for 1920 and 1910, according to age when vision was reported as having been lost.

TABLE 28.—BLIND POPULATION, BY SEX AND AGE WHEN VISION WAS LOST, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

AGE WHEN VISION WAS LOST	NUMBER, 1920			PER CENT DISTRIBUTION, 1920			MALES PER 100 FEMALES [1]	
	Both sexes	Male	Female	Both sexes	Male	Female	1920	1910
Total	40,913	23,977	16,936	------	------	------	141.6	142.0
Age reported	39,921	23,433	16,488	100.0	100.0	100.0	142.1	142.3
Under 20 years [2]	14,727	8,110	6,617	36.9	34.6	40.1	122.6	125.9
Under 5 years	8,340	4,411	3,929	20.9	18.8	23.8	112.3	116.7
Born blind	3,978	2,168	1,810	10.0	9.3	11.0	119.8	115.4
Under 1 year	2,215	1,094	1,121	5.5	4.7	6.8	97.6	118.1
1 to 4 years	2,147	1,149	998	5.4	4.9	6.1	115.1	116.9
5 to 9 years	2,478	1,373	1,105	6.2	5.9	6.7	124.3	127.9
10 to 14 years	1,849	1,129	720	4.6	4.8	4.4	156.8	127.2
15 to 19 years	1,410	884	526	3.5	3.8	3.2	168.1	164.9
Age not definitely reported [2]	650	313	337	1.6	1.3	2.0	92.9	137.3
20 to 64 years	17,341	11,168	6,173	43.4	47.7	37.4	180.9	175.1
20 to 24 years	1,543	1,099	444	3.9	4.7	2.7	247.5	224.6
25 to 34 years	3,119	2,157	962	7.8	9.2	5.8	224.2	231.8
35 to 44 years	3,783	2,612	1,171	9.5	11.1	7.1	223.1	212.5
45 to 54 years	4,160	2,573	1,587	10.4	11.0	9.6	162.1	155.4
55 to 59 years	2,043	1,203	840	5.1	5.1	5.1	143.2	134.1
60 to 64 years	2,510	1,423	1,087	6.3	6.1	6.6	130.9	126.6
Age not definitely reported	183	101	82	0.5	0.4	0.5	--------	-------
65 years or over	7,853	4,155	3,698	19.7	17.7	22.4	112.4	109.5
65 to 69 years	2,195	1,248	947	5.5	5.3	5.7	131.8	123.6
70 to 74 years	2,284	1,247	1,037	5.7	5.3	6.3	120.3	118.5
75 to 79 years	1,599	807	792	4.0	3.4	4.8	101.9	99.2
80 years or over	1,619	775	844	4.1	3.3	5.1	91.8	95.8
Age not definitely reported	156	78	78	0.4	0.3	0.5	--------	-------
Age not reported	992	544	448	------	------	------	121.4	129.3

[1] Ratio not shown where number of females is less than 100.
[2] Includes persons under 20 years of age at the date of enumeration for whom the age when vision was lost was not reported.

Over one-third (36.9 per cent) of the blind lost their sight in childhood or youth, or before 20 years; over two-fifths (43.4 per cent) during early and middle adult life, or between 20 and 64; and practically one-fifth (19.7 per cent) in old age, or after 64. To put the matter in different terms, nearly two-thirds (63.1 per cent)

of all blindness falls at 20 or after, or in adult life; a little over one-half (51. 5 per cent) after 34, or in middle or late adult life; almost one-third (31.6 per cent) after 54, or in late adult life; and about one-seventh (14.2 per cent) at 70 or over, or in old age. The median age of the occurrence of blindness is 36.9. (See Table 34.)

Of the blindness occurring under 20 years, almost two-thirds (representing 20.9 per cent of the total) occurs in the first 5 years, nearly one-half (10 per cent of all) being reported as from birth. Under 1 year has a relatively high proportion for a single year (5.5 per cent). Returns as to the number of blind persons born blind or losing sight in the first year of life are, as already indicated, very uncertain, it being often impossible at such early periods to know precisely when the absence of vision was first manifested or when its loss actually occurred; this fundamental difficulty is accentuated by the frequent lack of competent medical examination and by the occasional reluctance of parents to state the real situation.[18]

The highest proportion for any 5-year period after the first and under 20 is for the period 5 to 9. After this time there is a rather slight decline for the succeeding 5-year periods (10-year periods being considered as doubled, where they occur) until 35, or until the most active period of life, when there is a slight increase, which continues to 65, the highest proportion of any age period except for the group born blind being at the period 60 to 64. After this time there is a slight downward trend through the remainder of life. This movement, however, with respect to the age of the occurrence of blindness is to be taken with some qualification. The numbers in the general population become constantly smaller, so that the number upon whom blindness might fall is constantly being diminished with advancing years. In view of this fact, the increasing proportions up to 65 years and the very moderate reduction thereafter emphasizes what has already been said, that, because of generally weakened powers and because of the special incidence of certain eye diseases at that time of life, the elderly and the aged are the ones peculiarly subject to blindness.

Females lose their sight relatively more frequently in childhood and youth than males. The difference is greatest in the earlier years of life, gradually lessening up to the age of 10, when males assume the lead, this circumstance, because of their greater vigor and venturesomeness, probably indicating their increasing liability to injuries to the eye from play and sports, if not from industrial hazards also. The proportion losing sight under 20 is 34.6 per cent for males and 40.1 per cent for females; the respective proportions losing sight between 20 and 64 are 47.7 per cent and 37.4 per cent, and for those losing sight at 65 or over, 17.7 per cent and 22.4 per cent. The larger proportion for females than for males under 20 is not to be taken as indicating that females are markedly in greater danger of blindness at that time of life; perhaps it only reflects the lowered proportions for males resulting from their greater numbers later on in life. The larger proportion for males continues through early and middle adult life and up to the beginning of old age. The excess for males becomes pronounced at 20, and remains considerable to 45, or during the time of life when males are most actively engaged in industry. Besides the greater liability of males to loss of sight from industrial accidents in early and middle adult life, it is possible that their increased proportions at this period of life are due to a greater prevalence among them of venereal disease. At 60 the proportion for females is greater, and for the remainder of late middle life and in old age so remains, constantly increasing its lead until the end of life. The median age of the occurrence of blindness is 36.6 for males and 37.6 for females. (See Table 34.)

[18] Blindness of hereditary character does not usually occur at birth, but manifests itself at some later period of life. (See section on Causes of Blindness, pp. 115–167.)

A similar showing for the two sexes of the relative frequency of the loss of sight at different ages is found in the ratio of males to 100 females at these different ages. Females outnumber males at the earliest period and in old age; the ratio shows a considerable advance at 10, rising thereafter to the period 20 to 24 years. It remains high all through the period of industrial activity, when it rapidly declines.

In comparison with 1910, the ratios of males to 100 females show variations, though on the whole they are not great. In 1920 the ratio of males to females is slightly smaller for the period under 20 and slightly larger for the period above this age.

Geographic divisions.—Table 29 gives the number and the percentage distribution of the blind, by age when sight was lost, for the several geographic divisions.

TABLE 29.—BLIND POPULATION, BY AGE WHEN VISION WAS LOST, BY GEOGRAPHIC DIVISIONS: 1920

[Figures include only blind persons returning special schedules]

GEOGRAPHIC DIVISION	NUMBER LOSING VISION AT AGE OF—					PER CENT OF TOTAL [1] LOSING VISION AT AGE OF—		
	Total	Under 20 years [2]	20 to 64 years [3]	65 years or over [4]	Not reported	Under 20 years	20 to 64 years	65 years or over
United States	40,913	14,727	17,341	7,853	992	36.9	43.4	19.7
New England	4,184	1,302	1,778	974	130	32.1	43.9	24.0
Middle Atlantic	7,807	2,809	3,378	1,394	226	37.1	44.6	18.4
East North Central	10,253	3,534	4,362	2,118	239	35.3	43.6	21.2
West North Central	4,881	1,745	2,023	1,013	100	36.5	42.3	21.2
South Atlantic	4,594	1,910	1,877	719	88	42.4	41.7	16.0
East South Central	3,371	1,309	1,418	577	67	39.6	42.9	17.5
West South Central	2,716	1,120	1,124	418	54	42.1	42.2	15.7
Mountain	1,400	453	607	307	33	33.1	44.4	22.5
Pacific	1,707	545	774	333	55	33.0	46.9	20.2

[1] Based upon the number for whom the age when vision was lost was reported.
[2] Includes persons under 20 years of age at the date of the enumeration for whom the age when vision was lost was not reported; includes also persons reported as having lost their vision in infancy, childhood, or youth.
[3] Includes persons reported as having lost their vision in the prime of life, or middle life.
[4] Includes persons reported as having lost their vision in old age.

In large measure, in the geographic divisions, the proportions for the ages when vision was lost follow the proportions found at the corresponding ages of enumeration (see Table 20), and the statements advanced by way of explanation in that connection apply as well here. In particular, there is indicated a relatively high incidence of blindness in early and middle adult life, the active working period of life, for the industrial sections of the country.

Probable risk at various ages.—In Table 30 an attempt is made to present the risks of blindness attending various age periods in life, showing for this purpose the number of persons reported as becoming blind at specified periods and the number of persons in the general population who have already attained the given age (representing roughly, therefore, all potential cases of blindness at that age), together with the ratio between the two numbers.[19]

[19] No allowance is made for deaths, increases in the general population, possible changes as to risks with the passing of time, or additional cases of blindness occurring at a particular age, or cases already blind before reaching the specified age. (See The Blind in the United States: 1910, p. 85.)

TABLE 30.—PROBABILITY OF BLINDNESS AT VARIOUS AGES, ESTIMATED FROM NUMBER OF PERSONS LOSING VISION AT SPECIFIED AGES PER MILLION OF THE GENERAL POPULATION OF SAME AGE, FOR THE UNITED STATES: 1920

[Figures for blind include only those returning special schedules]

AGE WHEN VISION WAS LOST	Number of persons losing vision at specified age [1]	NUMBER OF PERSONS IN THE GENERAL POPULATION WHO HAVE ATTAINED SPECIFIED AGE		Number of blind persons losing vision per million of specified age
		Age	Number [2]	
Under 20 years	14,727	All ages	105,561,921	140
Under 5 years	8,340	All ages	105,561,921	79
5 to 9 years	2,478	5 years and over	93,988,691	26
10 to 14 years	1,849	10 years and over	82,590,616	22
15 to 19 years	1,410	15 years and over	71,949,479	20
Age not definitely reported	650			
20 to 59 years	14,831	20 years and over	62,518,923	237
20 to 24 years	1,543	20 years and over	62,518,923	25
25 to 34 years	3,119	25 years and over	53,241,902	59
35 to 44 years	3,783	35 years and over	36,084,218	105
45 to 54 years	4,160	45 years and over	21,963,380	189
55 to 59 years	2,043	55 years and over	11,464,887	178
Age not definitely reported	183			
60 years or over	10,363	60 years and over	7,915,763	1,309
60 to 64 years	2,510	60 years and over	7,915,763	317
65 to 69 years	2,195	65 years and over	4,933,215	445
70 to 74 years	2,284	70 years and over	2,864,740	797
75 to 79 years	1,599	75 years and over	1,469,704	1,088
80 years or over	1,619	80 years and over	613,144	2,640
Age not definitely reported	156			

[1] Exclusive of those for whom the age when vision was lost was not reported, except those under 20 years of age at the date of the enumeration.
[2] Exclusive of age unknown.

In this table the risk of blindness in old age is shown in very striking form, the incidence of blindness at such time appearing of abnormal proportions. The ratio to the general population 60 years or over is 1,309—that is, 1 person to each 750 persons, approximately, is liable to become blind at 60 years of age. For the highest period, or 80 years or over, the ratio is 2,640. For the periods under 20 years and from 20 to 59 the respective ratios are 140 and 237. With the exception of the period under 5 years (this group being relatively large, by reason of the large proportion becoming blind under 1 year), the risk of blindness in the years of childhood and youth is very low; with adult life it begins to increase, this increase continuing through life and at a constantly accelerated rate.

Comparison with earlier censuses.—As already intimated, a very important means of determining progress in the campaign for the prevention of blindness is by an examination over a series of years of the increase or decrease of blindness at the various ages at which vision is lost. Table 31 shows, for different ages at which this loss occurred, the number and the percentage distribution in 1920, 1910, and 1880. The year 1880 is the first year that statistics were compiled on this subject. Figures for 1890 and 1900 are omitted because of their unsatisfactory nature for comparative purposes in this respect.

TABLE 31.—BLIND POPULATION, BY AGE WHEN VISION WAS LOST, FOR THE UNITED STATES: 1920, 1910, AND 1880

[Figures include only blind persons returning special schedules]

AGE WHEN VISION WAS LOST	NUMBER			PER CENT DISTRIBUTION		
	1920	1910	1880	1920	1910	1880
Total	40,913	29,242	31,410			
Age reported	39,921	28,671	31,410	100.0	100.0	100.0
Under 20 years	[1] 14,727	[1] 8,819	11,383	36.9	30.8	36.2
Under 5 years	8,340	4,697	6,802	20.9	16.4	21.7
Born blind	3,978	1,900	4,031	10.0	6.6	12.8
Under 1 year	2,215	1,422	769	5.5	5.0	2.4
1 to 4 years	2,147	1,375	2,002	5.4	4.8	6.4
5 to 9 years	2,478	1,513	1,932	6.2	5.3	6.2
10 to 19 years	3,259	2,367	2,649	8.2	8.3	8.4
10 to 14 years	1,849	1,220	1,436	4.6	4.3	4.6
15 to 19 years	1,410	1,147	1,213	3.5	4.0	3.9
Age not definitely reported	[1] 650	[1] 242		1.6	0.8	
20 to 59 years	14,831	11,674	11,747	37.2	40.7	37.4
20 to 24 years	1,543	1,253	1,365	3.9	4.4	4.3
25 to 34 years	3,119	2,485	2,652	7.8	8.7	8.4
35 to 44 years	3,783	2,859	3,032	9.5	10.0	9.7
45 to 54 years	4,160	3,264	3,269	10.4	11.4	10.4
55 to 59 years	2,043	1,620	1,429	5.1	5.7	4.5
Age not definitely reported	183	193		0.5	0.7	
60 years or over	10,363	8,178	8,280	26.0	28.5	26.4
60 to 79 years	8,588	6,689	6,873	21.5	23.3	21.9
60 to 64 years	2,510	1,919	1,968	6.3	6.7	6.3
65 to 69 years	2,195	1,791	1,782	5.5	6.2	5.7
70 to 74 years	2,284	1,744	1,825	5.7	6.1	5.8
75 to 79 years	1,599	1,235	1,298	4.0	4.3	4.1
80 years or over	1,619	1,361	1,407	4.1	4.7	4.5
Age not definitely reported	156	128		0.4	0.4	
Age not reported	992	571				

[1] Includes persons under 20 years of age at the date of the enumeration for whom the age when vision was lost was not reported.

Since the year 1880, however, there have been certain changes in the age distribution, in particular a certain decrease in the proportion of children and a certain increase in the proportion of old people,[20] and these changes must be taken into consideration in any comparison of the proportions becoming blind at certain ages. According to the percentages as actually reported, there is a slight increase between 1880 and 1920 for the group losing vision at less than 20 years and a smaller reduction in the proportions at the two adult periods shown in the table. Since 1910, moreover, there appears an even greater increase in the proportions losing sight under 20 years, which, in view of the decreasing proportions of young people in the general population upon whom blindness might fall, can only have come through more complete returns for the younger group at the 1920 enumeration. It is toward the reduction of blindness in youth, and particularly that of infancy and childhood, that much of the special campaign against blindness has been directed, in order that a large part of life may be saved from this burden of blindness.

Sex.—In Table 32 are shown the percentage distribution (and the total number in 1920) of male and female blind for the census years 1920, 1910, and 1890, census years fairly suitable for comparative purposes, according to whether blindness occurred at different age periods under 20 or after that time.

[20] See Fourteenth Census reports, Vol. II, Ch. III.

TABLE 32.—BLIND POPULATION, BY AGE WHEN VISION WAS LOST, BY SEX, FOR THE UNITED STATES: 1920, 1910, AND 1890

[Figures include only blind persons returning special schedules]

AGE WHEN VISION WAS LOST	MALE				FEMALE			
	Number, 1920	Per cent distribution			Number, 1920	Per cent distribution		
		1920	1910	1890		1920	1910	1890
Total	23,977				16,936			
Age reported	23,433	100.0	100.0	100 0	16,488	100.0	100.0	100.0
Under 20 years	[1] 8,110	[1] 34.6	[1] 29.2	32.3	[1] 6,617	[1] 40.1	[1] 33.0	33.3
Under 5 years	4,411	18.8	15.0	17.8	3,929	23.8	18.3	19.0
Born blind	2,168	9.3	6.0	9.5	1,810	11.0	7.5	9.7
Under 1 year	1,094	4.7	4.6	2.9	1,121	6.8	5.5	3.4
1 to 4 years	1,149	4.9	4.4	5.5	998	6.1	5.4	6.0
5 to 9 years	1,373	5.9	5.0	5.6	1,105	6.7	5.6	6.1
10 to 19 years	2,013	8.6	8.3	8.9	1,246	7.6	8.2	8.3
20 years or over	[2] 15,323	[2] 65.4	[2] 70.8	67.7	[2] 9,871	[2] 59.9	[2] 67.0	66.7
Age not reported	544				448			

[1] Includes persons under 20 years of age at the date of enumeration for whom the age when vision was lost was not reported; includes also persons reported as having lost their vision in infancy, childhood, or youth, but without statement as to the exact age.

[2] Includes persons reported as having lost their vision in the prime of life, middle life, or old age, but without statement as to the exact age.

For both sexes there are decreases between 1890 and 1910, for certain ages, for blindness occurring under 20, and a general increase between 1910 and 1920, with the situation reversed as to blindness occurring at 20 or over. The apparent recent increases in blindness of early life are generally greater in the case of females, and especially so in blindness of the first year. Possibly this greater increase for females is to some extent a reflection of the larger amount of blindness occurring to males in adult life as a result of industrial accidents. These tendencies, as between males and females, are in keeping with differences already found in a previous connection. (See Table 28).

Race and nativity.—In Table 33 is shown the per cent distribution by age when blindness occurred for the several race and nativity classes, for both sexes and for each sex separately.

Over two-fifths (43 per cent) of native whites lost their sight in childhood or youth, a much larger proportion than of any other group. Indians and Negroes follow, with about three-tenths (30.6 per cent and 29.3 per cent, respectively). Foreign-born whites are last, with only one-eighth (12.3 per cent). The very low proportion for the last-named group is explained by the fact, already referred to, that most immigrants coming to the United States are in adult life or past the period when blindness of early origin could have occurred; persons blind in the old country, furthermore, as also already pointed out, are little likely to emigrate, or, if they do, are debarred when likely to become public charges. The situation as to the colored becoming blind before 20 may possibly be accounted for to some extent by the circumstances that in later life, when their proportions are correspondingly larger, they are relatively without facilities to ward off eye affections or to arrest oncoming weakening of the sight, both of these leading perhaps to eventual blindness.

TABLE 33.—BLIND POPULATION, BY SEX, RACE, AND NATIVITY—PER CENT DISTRIBUTION BY AGE WHEN VISION WAS LOST, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules. Base figures in Table 101, p. 173]

AGE WHEN VISION WAS LOST	NATIVE WHITE			FOREIGN-BORN WHITE			NEGRO			INDIAN		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Age reported	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 20 years	43.0	40.9	45.9	12.3	10.6	15.2	29.3	28.3	31.0	30.6	27.6	35.0
Under 5 years	25.0	22.9	28.0	5.6	4.7	6.9	13.9	12.8	15.6	14.6	10.3	20.8
Born blind	12.1	11.3	13.1	1.9	1.6	2.4	7.1	7.4	6.7	4.4	4.0	5.0
Under 1 year	6.8	5.9	8.0	1.6	1.2	2.2	2.4	1.5	3.9	4.4	1.7	8.3
1 year	1.7	1.5	1.9	0.5	0.4	0.6	0.8	0.5	1.2	1.4	1.1	1.7
2 to 4 years	4.5	4.2	5.0	1.6	1.5	1.7	3.6	3.4	3.9	4.4	3.4	5.8
5 to 9 years	7.1	6.8	7.5	2.6	2.3	3.1	5.3	4.9	5.9	4.4	6.3	1.7
10 to 14 years	5.2	5.5	4.8	1.8	1.6	2.2	4.7	5.0	4.3	5.1	5.2	5.0
15 to 19 years	3.7	4.1	3.2	1.9	1.7	2.2	4.7	4.8	4.3	4.4	4.6	4.2
Age not definitely reported	2.0	1.7	2.4	0.4	0.2	0.8	0.8	0.8	0.9	2.0	1.1	3.3
20 to 64 years	39.6	43.2	34.8	54.8	60.6	45.6	54.0	58.3	47.0	48.3	55.7	37.5
20 to 24 years	3.9	4.7	2.7	2.7	3.1	2.0	5.7	7.2	3.2	3.7	4.0	3.3
25 to 34 years	7.2	8.4	5.5	8.5	10.6	5.2	11.3	12.3	9.7	10.2	13.2	5.8
35 to 44 years	8.2	9.6	6.4	12.4	15.1	8.2	14.4	15.9	11.9	7.8	9.8	5.0
45 to 54 years	9.4	9.7	8.9	14.3	15.3	12.7	12.2	13.0	10.8	13.3	15.5	10.0
55 to 59 years	4.7	4.6	4.8	7.1	7.5	6.6	5.1	5.1	5.1	5.1	5.7	4.2
60 to 64 years	5.8	5.6	6.0	9.4	8.9	10.3	5.2	4.7	5.9	7.5	7.5	7.5
Age not definitely reported	0.5	0.5	0.5	0.4	0.3	0.5	0.2	0.1	0.3	0.7	-----	1.7
65 years or over	17.3	15.9	19.2	32.8	28.8	39.3	16.7	13.4	22.0	21.1	16.7	27.5
65 to 69 years	4.8	4.8	4.9	9.0	8.5	9.8	5.0	4.4	6.1	5.8	4.0	8.3
70 to 74 years	5.1	4.8	5.5	9.4	8.6	10.7	4.9	4.1	6.4	4.4	3.4	5.8
75 to 79 years	3.7	3.2	4.3	6.6	5.3	8.5	2.8	2.3	3.5	2.4	2.3	2.5
80 years or over	3.4	2.8	4.2	7.5	6.0	9.7	3.5	2.4	5.4	7.5	5.2	10.8
Age not definitely reported	0.4	0.3	0.5	0.4	0.4	0.5	0.4	0.3	0.6	1.0	1.7	-----

The highest proportion (54.8 per cent) losing sight between the ages of 20 and 64, or in the time of greatest industrial activity, is for the foreign born, a condition due largely to their special liability to industrial accidents at this time of life, a relatively great number of this group being engaged in industrial processes. The proportion for Negroes, however, is but little less (54 per cent), followed by that for Indians (48.3 per cent), the proportion for whites (39.6 per cent) being smallest for this age period.

The highest proportion losing sight in old age (32.8 per cent) is also found among the foreign born. The percentages for Indians, native whites, and Negroes are not very different—21.1, 17.3, and 16.7, respectively.

Among all the groups a larger proportion of females lose sight under 20, of males between 20 and 64, and of females after 64. The differences between the sexes are on the whole most pronounced in the case of Indians. In early and middle adult life the differences are notable in the case of foreign-born whites, being mainly due no doubt to the fact that the foreign-born population contains, in general, a relatively large proportion of males, among whom there is a special liability, at such period of life, to blindness from industrial injuries.

In Table 34 is shown the median age for loss of sight in 1920 and 1910, for the several race and nativity groups, for both sexes and for each sex separately.

TABLE 34.—MEDIAN AGE AT WHICH VISION WAS LOST, FOR BLIND POPULATION, CLASSIFIED BY SEX, RACE, AND NATIVITY, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

RACE AND NATIVITY	MEDIAN AGE [1]					
	1920			1910		
	Both sexes	Male	Female	Both sexes	Male	Female
All classes	36.9	36.6	37.6	41.0	39.5	44.3
White	36.8	36.6	37.1	40.9	39.5	43.8
Native	30.1	30.7	28.7	35.9	35.1	37.6
Foreign-born	54.7	51.9	59.9	54.6	51.8	58.8
Negro	37.7	36.5	40.1	41.3	38.9	46.4
Indian	42.2	40.0	46.7	[2] 45.3	[2] 43.7	[2] 48.5

[1] Based upon the number for whom the age when vision was lost was reported.
[2] Figures are for colored, other than Negro, and thus include a few Chinese and Japanese.

The median age for foreign-born whites is 54.7, for Indians 42.2, for Negroes 37.7, and for native whites 30.1. Only for the last-named group is there a higher median age in the case of males than in the case of females. Compared with 1910, a lower median age is found for all groups except foreign-born whites. The decline is generally greater in the case of females.

Age at enumeration.—In Table 35 is given the percentage distribution of the blind by age when vision was lost, classified according to age at enumeration.

TABLE 35.—BLIND POPULATION, BY AGE AT ENUMERATION—PER CENT DISTRIBUTION BY AGE WHEN VISION WAS LOST, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules. Base numbers in Table 102, p. 174]

AGE WHEN VISION WAS LOST	AGE AT ENUMERATION											
	All ages [1]	Under 5 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 to 74 years	75 yrs. and over
Total [2]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 20 years:												
Under 5 years	21.4	------	91.4	77.1	66.2	56.5	40.1	22.5	13.7	8.9	3.7	1.1
Born blind	10.2	62.4	52.8	42.3	33.5	24.8	17.3	9.8	5.6	3.0	1.4	0.4
Under 1 year	5.7	26.8	24.1	19.2	18.7	18.5	11.7	5.2	3.3	2.3	0.8	0.1
1 year	1.4	6.6	3.8	4.3	3.9	3.5	2.7	2.1	1.1	0.7	0.3	0.1
2 to 4 years	4.1	4.2	10.7	11.2	10.1	9.7	8.4	5.4	3.7	2.9	1.2	0.4
5 to 9 years	6.4	------	8.6	16.8	16.7	16.0	13.0	9.5	6.2	3.8	2.0	1.1
10 to 14 years	4.7	------	------	6.1	13.6	12.9	10.0	8.1	5.7	3.0	2.0	0.9
15 to 19 years	3.6	------	------	------	3.5	10.0	9.5	8.1	5.1	2.8	1.5	0.8
20 to 64 years:												
20 to 24 years	4.0	------	------	------	------	4.6	13.5	9.6	5.9	3.3	1.8	1.1
25 to 34 years	8.0	------	------	------	------	------	14.0	25.6	15.3	8.9	4.6	1.8
35 to 44 years	9.7	------	------	------	------	------	------	16.6	30.5	16.5	7.9	2.7
45 to 54 years	10.7	------	------	------	------	------	------	------	17.6	32.2	15.5	4.9
55 to 64 years	11.7	------	------	------	------	------	------	------	------	20.5	35.7	11.7
65 years or over:												
65 to 74 years	11.5	------	------	------	------	------	------	------	------	------	25.4	34.3
75 years or over	8.3	------	------	------	------	------	------	------	------	------	------	39.6

[1] Includes the small number whose age at enumeration was not reported.
[2] Includes only the number for whom the age when vision was lost was definitely reported.

A certain correspondence exists between the present age and the age when vision was lost, though with some variations. Generally, the earlier the present age of the blind the larger is the proportion who lost sight at an early age; and so on, in somewhat like measure, in succeeding ages. Up to middle life, however, there is at all periods a very large proportion of blindness reported as having occurred at birth or during the first year of life, an indication of the great risk of blindness at that time. In adult life, and particularly in later adult life, the largest proportions of blindness occur relatively late, an indication of the recentness of the affliction and of increasing frequency of blindness in adult life. Except for congenital blindness, found, as has been stated, in large proportions among the younger people enumerated, and except for the very inclusive group losing vision at 75 years or more, the most numerous single group is that of persons losing vision between the ages of 55 and 64 who were 65 to 74 years of age at enumeration.

In Table 36 are shown, for persons 20 years of age and over who lost their sight when under that age, the number and per cent distribution, according to the actual age at which such loss occurred.

TABLE 36.—BLIND POPULATION 20 YEARS OF AGE AND OVER REPORTED AS HAVING LOST VISION WHEN LESS THAN 20 YEARS OF AGE, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

AGE WHEN VISION WAS LOST	NUMBER				PER CENT DISTRIBUTION[2]			
	Total[1]	AGE AT ENUMERATION			Total[1]	AGE AT ENUMERATION		
		20 to 39 years	40 to 59 years	60 years and over		20 to 39 years	40 to 59 years	60 years and over
Total	9,332	4,824	2,927	1,450	100.0	100.0	100.0	100.0
Under 5 years	4,551	2,594	1,328	551	49.8	54.7	46.4	39.1
Born blind	1,912	1,124	529	210	20.9	23.7	18.5	14.9
Under 1 year	1,212	759	328	111	13.3	16.0	11.5	7.9
1 year	348	181	122	38	3.8	3.8	4.3	2.7
2 to 4 years	1,079	530	349	192	11.8	11.2	12.2	13.6
5 to 9 years	1,765	856	557	333	19.3	18.1	19.5	23.7
10 to 14 years	1,478	669	513	277	16.2	14.1	17.9	19.7
15 to 19 years	1,343	622	462	247	14.7	13.1	16.2	17.5
Age not definitely reported	195	83	67	42				

[1] Includes the small number whose age at enumeration was not reported.
[2] Based upon the number for whom the age when vision was lost was definitely reported.

The purpose of the table is, by indicating as far as possible the extent to which age is affected by early loss of sight, to throw certain light upon the longevity of the blind. In general, for those who lose sight in the first years of life, or are born blind, the proportion declines steadily in each successive age period in life, while the proportion for those who lose sight in the later years of childhood and in youth shows a corresponding advance. In other words, the earlier the loss of sight the smaller is the proportion of the blind who attain to advanced life. There is evidently a marked effect upon longevity in the blindness occurring at the beginning of life, especially at birth or in the first year. Possibly, in consequence of the disorder producing the original blindness, especially if it was of a venereal character, the system has been left weakened or debilitated, or vitality has been more or less impaired, and a long span of life is not to be expected.

MARITAL CONDITION

The general subject of the marriages of the blind has connection with the matter of eugenics in but limited degree. This is because, blindness being largely a defect of the relatively late years of life, the marriages of blind persons are usually contracted before the occurrence of their affliction; their marriages are for the most part with persons not blind, there being relatively few marriages of blind persons with other blind persons, and disorders of hereditary influence such as cause blindness are of relatively restricted extent.[21] The possibility of the transmission of blindness through the operation of hereditary forces is considered at a later stage.[22] Our present concern is with the marital condition of the blind, in comparison with that of the population at large, including a study of the extent to which blindness may act as a barrier to, or a limitation upon, marriage.

Comparison with general population.—In Table 37 are given, for males and females separately, the distribution of the blind population and of the general population 15 years of age and over, in 1920 and 1910, according to whether they are single or are married, widowed, or divorced, and the number of blind enumerated per million of the general population of the same marital condition, for 1920 and 1910.

TABLE 37.—BLIND POPULATION 15 YEARS OF AGE AND OVER, BY SEX AND MARITAL CONDITION, FOR THE UNITED STATES: 1920 AND 1910

MARITAL CONDITION	BLIND POPULATION RETURNING SPECIAL SCHEDULES[1]			ESTIMATED TOTAL BLIND ENUMERATED, 1920[2]		Per cent distribution of blind enumerated, 1910	NUMBER OF BLIND ENUMERATED PER MILLION OF THE GENERAL POPULATION		PER CENT DISTRIBUTION OF GENERAL POPULATION[2]	
	Number, 1920	Per cent distribution[2]		Number	Per cent distribution		1920[3]	1910	1920	1910
		1920	1910							
	MALES									
Total	22,097	100.0	100.0	27,782	100.0	100.0	752	936	100.0	100.0
Single	7,491	34.4	32.3	9,557	34.4	32.4	737	779	35.2	38.9
Married, widowed, or divorced	14,276	65.6	67.7	18,225	65.6	67.6	764	1,036	64.8	61.1
Married	9,823	45.1	48.5	12,530	45.1	46.0	573	769	59.4	56.1
Widowed	3,953	18.2	18.3	5,056	18.2	20.5	2,875	4,219	4.8	4.6
Divorced	500	2.3	1.0	639	2.3	1.0	2,715	2,030	0.6	0.5
Marital condition not reported	330									
	FEMALES									
Total	15,495	100.0	100.0	20,622	100.0	100.0	583	769	100.0	100.0
Single	5,474	35.9	32.2	7,403	35.9	29.3	770	756	27.4	29.8
Married, widowed, or divorced	9,756	64.1	67.8	13,219	64.1	70.7	518	773	72.6	70.2
Married	3,915	25.7	27.1	5,308	25.7	26.5	249	345	60.7	59.0
Widowed	5,671	37.2	40.0	7,683	37.2	43.5	1,961	3,154	11.2	10.6
Divorced	170	1.1	0.6	228	1.1	0.6	834	800	0.8	0.6
Marital condition not reported	265									

[1] Includes those whose age was not reported.
[2] Based upon the number whose marital condition was reported.
[3] Based upon the estimated total enumerated.

[21] There are probably in the United States several hundred blind married couples, both partners being blind at the time of marriage.

[22] See section on Causes of Blindness, pp. 115-167.

For both blind males and blind females of marriageable age the proportion who are or have been married is a little under two-thirds (65.6 per cent and 64.1 per cent, respectively), the proportion for males being slightly the larger of the two. With the general population the respective proportions who are or have been married are 64.8 per cent and 72.6 per cent. With males the proportions are almost the same for the blind and for the general population; with females the proportion is somewhat less for the blind. Marriage is thus less common with the female blind than with the male. It is not to be inferred, however, that for either sex the blind are married by any means to the same extent as the general population. Because of the very great number of the blind in middle or advanced life, at a time when most persons have become married, the proportion for the blind in this respect should normally be much larger than is actually the case. If the proportion of married persons among the blind were as great as that proportion in the general population of the same age composition as the blind, the number of the blind married would be about one-fifth greater.[23] At the same time it is to be remembered that the great majority of those blind persons reported as having been married were married prior to the oncoming of their affliction, blindness, as already observed, being rather incident to the later years of life, and hence their marital condition is scarcely affected by the fact of their blindness. Moreover, a certain number of blind persons, especially males, are able to find a mate, most often from the ranks of those who can see. The opportunities for marriage among blind females, because of their generally more confined existence, are considerably more restricted than among blind males; and however much blindness may act as a bar to marriage among the latter, its effects are much more pronounced for the former. A further reason for the relatively small number of blind females who have been married lies in the relatively more advanced age frequently attained by them, a circumstance that would serve to enlarge the proportion shown for those who have remained single. The fact that females in the general population marry at an earlier age than males is offset to a certain extent by the further fact that with the blind population blindness occurs among females in a relatively greater degree in childhood and youth, or before the time of marrying. (See Table 28, p. 45.)

That neither blind males nor blind females usually remarry is indicated by the high proportion widowed—18.2 per cent, or four times as great as for the general population, in the case of males, and 37.2 per cent, or over three times as great, in the case of females. Of blind females who have once been married, much less than half are so still. Probably very few blind widows remarry. With many of the blind their relatively greater age would of course operate to prevent a second marriage. With the female blind, moreover, the situation is largely reflected which exists among the population in general—that is, widows as a rule are much less given to remarriage than widowers, and females, because of their generally earlier marrying age and greater longevity, are more often the survivors at the breaking by death of the marriage tie. The proportion divorced among the blind is considerably above the proportion in the general population, in the case of blind males being four times as great. This situation inspires the question whether blindness could of itself have been a causative factor, direct or indirect, in bringing about the divorce. When comparison is made in the table between the number of the blind per million of the general population in the same marital groups, the high figures for the widowed and for the divorced among the blind become particularly striking.

[23] Roughly computed, for each sex, by finding the percentage married, widowed, or divorced in the general population for certain large age groups, and applying the percentage to the same age group among th e blind. (See The Blind in the United States: 1910, p. 57.)

Since 1910 there has been a small decrease in the proportion of the blind who are or have been married, but the proportion of divorced for both males and females has been doubled, the increase with the general population in this regard being much less. If blindness, of itself, has any effect upon divorce, this effect is apparently proving stronger with time.

Sex, race, and nativity.—Table 38 gives for blind persons 15 years of age and over returning special schedules the number and the per cent distribution by marital condition, classified according to sex, race, and nativity; the number in each marital group per million of the general population of the same marital condition, sex, race, and nativity are also shown.

TABLE 38.—BLIND POPULATION 15 YEARS OF AGE AND OVER BY MARITAL CONDITION, BY SEX, RACE, AND NATIVITY, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

MARITAL CONDITION AND SEX	BLIND PERSONS 15 YEARS OF AGE AND OVER					
	All classes [1]	White			Negro	Indian
		Total	Native	Foreign-born		
	NUMBER					
Male	22,097	19,583	15,733	3,850	2,320	176
Single	7,491	6,807	5,978	829	628	50
Married, widowed, or divorced	14,276	12,502	9,522	2,980	1,639	123
Married	9,823	8,698	6,715	1,983	1,045	71
Widowed	3,953	3,387	2,444	943	518	46
Divorced	500	417	363	54	76	6
Marital condition not reported	330	274	233	41	53	3
Female	15,495	13,968	11,543	2,425	1,405	116
Single	5,474	5,116	4,659	457	335	21
Married, widowed, or divorced	9,756	8,623	6,680	1,943	1,036	93
Married	3,915	3,539	2,901	638	338	38
Widowed	5,671	4,941	3,657	1,284	673	53
Divorced	170	143	122	21	25	2
Marital condition not reported	265	229	204	25	34	2
	PER CENT DISTRIBUTION [2]					
Male	100.0	100.0	100.0	100.0	100.0	100.0
Single	34.4	35.3	38.6	21.8	27.7	28.9
Married, widowed, or divorced	65.6	64.7	61.4	78.2	72.3	71.1
Married	45.1	45.0	43.3	52.1	46.1	41.0
Widowed	18.2	17.5	15.8	24.8	22.8	26.6
Divorced	2.3	2.2	2.3	1.4	3.4	3.5
Female	100.0	100.0	100.0	100.0	100.0	100.0
Single	35.9	37.2	41.1	19.0	24.4	18.4
Married, widowed, or divorced	64.1	62.8	58.9	81.0	75.6	81.6
Married	25.7	25.8	25.6	26.6	24.7	33.3
Widowed	37.2	36.0	32.3	53.5	49.1	46.5
Divorced	1.1	1.0	1.1	0.9	1.8	1.8

See footnotes at end of table.

TABLE 38.—BLIND POPULATION 15 YEARS OF AGE AND OVER BY MARITAL CONDITION, BY SEX, RACE AND NATIVITY, FOR THE UNITED STATES: 1920—Con.

[Figures include only blind persons returning special schedules]

MARITAL CONDITION AND SEX	BLIND PERSONS 15 YEARS OF AGE AND OVER					
	All classes [1]	White			Negro	Indian
		Total	Native	Foreign-born		
	PER MILLION OF GENERAL POPULATION [2]					
Male	598.5	587.5	603.2	530.8	683.7	2,306.0
Single	577.7	577.7	602.2	446.9	568.4	1,890.4
Married, widowed, or divorced	598.8	582.7	592.1	554.6	688.8	2,485.6
Married	449.6	441.6	453.9	404.5	509.7	1,647.5
Widowed	2,248.2	2,186.3	2,199.6	2,152.7	2,580.5	8,054.6
Divorced	2,125.1	2,008.1	2,065.9	1,690.1	2,847.6	8,823.5
Female	440.5	441.3	448.4	410.0	410.4	1,647.0
Single	569.2	583.2	587.0	546.8	405.9	1,293.3
Married, widowed, or divorced	382.4	377.6	376.0	383.2	399.8	1,723.3
Married	183.6	184.2	192.3	154.7	165.8	865.2
Widowed	1,447.6	1,453.4	1,474.4	1,396.8	1,324.9	5,750.2
Divorced	622.0	625.6	607.2	759.3	569.9	2,421.3

[1] Includes "other colored," chiefly Chinese and Japanese.
[2] Based upon the number whose marital condition was reported.

The percentages in the table indicate that the native whites have entered into marriage to a less extent, particularly the females, than either the foreign-born whites or the colored races shown. The ratios, however, reflecting differences in the age composition of the different groups, show that, in proportion to their numbers in the general population, native white blind males are more frequently married than foreign-born white, while with females the opposite is the case.

Another consideration doubtless affecting the relative proportions married in the various groups is the usual age of occurrence of blindness among them.

Age and sex.—In Table 39 is given for males and for females the percentage distribution of the general population and of the blind population for 1920 and 1910, according to marital condition at different age periods.

Here the effects of blindness upon marriage are again apparent, particularly as to the time of life when marriage is contracted. At all age periods the proportions married are lower, and after early or middle adult life the proportions widowed or divorced are higher, with the blind than in the general population. The disparity between the proportion married for the general population and that for the blind is most pronounced at the earlier periods, at the ages when marriages are most often contracted. At the earliest age period, or from 15 to 19, the proportion for males among the population at large who have been married is over three times as great as the proportion with the blind, and for females more than ten times as great. In the next period, from 20 to 24, the respective ratios are about 5 and 10. In the remaining periods the disparity in the proportions lessens until at 65 years and over the percentage of blind persons who have married is in substantial agreement with that of the general population, more particularly for males. The proportions of the blind still in the married state rapidly increase for males up to the period 55 to 64 and for

females up to the period 45 to 54, there being a decline for both sexes after these respective periods. The proportion widowed for males and for females among the blind shows an excess over that among the general population at the period 35 to 44, the excess continuing in the case of males at all later periods and in the case of females at all later periods except 55 to 64 years. The proportion divorced among the blind passes that in the general population, in the case of males at the period 25 to 29 and in the case of females at the period 35 to 44. The male blind who marry seem to be doing so generally at a slightly earlier age than was the case in 1910, and the female at a slightly later age. The earlier marriages for males may perhaps have been made possible by a better economic situation in some cases.

TABLE 39.—PER CENT DISTRIBUTION OF BLIND POPULATION AND OF THE GENERAL POPULATION, BY MARITAL CONDITION, BY SEX AND AGE, FOR THE UNITED STATES: 1920 AND 1910

[Base numbers for 1920 in Table 103, p. 175]

CENSUS YEAR, AGE, AND CLASS OF POPULATION	MALE					FEMALE				
		Married, widowed, or divorced					Married, widowed, or divorced			
	Single	Total	Married	Widowed	Divorced	Single	Total	Married	Widowed	Divorced
15 years and over: [1]										
Total population: 1920	35.2	64.8	59.4	4.8	0.6	27.4	72.6	60.7	11.2	0.8
Blind population: 1920 [2]	34.4	65.6	45.1	18.2	2.3	35.9	64.1	25.7	37.2	1.1
Blind population: 1910 [3]	32.4	67.6	46.0	20.5	1.0	29.3	70.7	26.5	43.5	0.6
15 to 19 years:										
Total population: 1920	97.9	2.1	2.1	[4]	[4]	87.1	12.9	12.6	0.3	0.1
Blind population: 1920	99.4	0.6	0.6	0.1	------	98.8	1.2	1.0	0.2	----
Blind population: 1910	99.6	0.4	0.3	0.1	------	98.6	1.4	0.9	0.3	0.2
20 to 24 years:										
Total population: 1920	70.9	29.1	28.4	0.5	0.2	45.6	54.4	52.4	1.4	0.6
Blind population: 1920	93.9	6.1	5.6	0.5	------	94.7	5.3	4.4	0.7	0.1
Blind population: 1910	94.2	5.8	5.1	0.5	0.2	89.5	10.5	8.6	1.5	0.4
25 to 29 years:										
Total population; 1920	39.5	60.5	58.8	1.1	0.5	23.1	76.9	73.4	2.6	0.9
Blind population: 1920	77.8	22.2	20.1	1.1	0.9	82.9	17.1	15.5	1.6	----
Blind population: 1910	80.1	19.9	18.2	1.2	0.5	75.2	24.8	21.6	2.7	0.5
30 to 34 years:										
Total population: 1920	24.2	75.8	73.4	1.8	0.7	14.9	85.1	80.2	3.9	1.0
Blind population: 1920	67.5	32.5	28.1	1.5	2.9	70.4	29.6	25.8	2.9	1.0
Blind population: 1910	65.5	34.5	31.1	2.4	1.1	61.9	38.1	30.8	6.2	1.1
35 to 44 years:										
Total population: 1920	16.2	83.8	80.0	3.0	0.9	11.4	88.6	80.3	7.2	1.1
Blind population: 1920	49.5	50.5	42.4	4.7	3.3	54.6	45.4	35.8	7.9	1.6
Blind population: 1910	48.9	51.1	43.3	6.3	1.5	48.1	51.9	38.1	12.4	1.3
45 to 54 years:										
Total population: 1920	12.0	88.0	81.2	5.8	1.0	9.6	90.4	74.1	15.3	1.0
Blind population: 1920	34.1	65.9	53.5	9.0	3.4	35.7	64.3	44.4	17.8	2.1
Blind population: 1910	34.1	65.9	53.6	10.4	1.9	33.9	66.1	44.0	20.9	1.3
55 to 64 years:										
Total population: 1920	9.8	90.2	78.1	11.2	1.0	8.4	91.6	61.3	29.6	0.8
Blind population: 1920	24.9	75.1	56.5	15.1	3.4	28.3	71.7	41.2	28.6	1.9
Blind population: 1910	21.6	78.4	58.2	18.8	1.4	20.4	79.6	42.7	36.0	0.8
65 years and over:										
Total population: 1920	7.4	92.6	64.9	27.0	0.7	7.1	92.9	34.0	58.5	0.4
Blind population: 1920	10.6	89.4	52.7	35.0	1.7	13.1	86.9	20.4	65.6	0.9
Blind population: 1910	9.6	90.4	52.8	36.9	0.7	10.4	89.6	19.5	69.8	0.4

[1] Includes those whose age was not reported.
[2] Based upon the blind population returning special schedules.
[3] Based upon the total blind population enumerated.
[4] Less than one-tenth of 1 per cent.

In Table 40 similar findings are presented, from a slightly different angle. Here are shown the total number of blind persons enumerated, according to marital condition, for the different age periods, and the number of blind per million of the general population of the same sex, marital condition, and age.

TABLE 40.—TOTAL BLIND POPULATION 15 YEARS OF AGE AND OVER (ESTIMATED), BY SEX, AGE, AND MARITAL CONDITION, WITH NUMBER OF BLIND PER MILLION OF GENERAL POPULATION OF SAME SEX, AGE, AND MARITAL CONDITION, FOR THE UNITED STATES: 1920

AGE	TOTAL BLIND POPULATION ENUMERATED, 15 YEARS OF AGE AND OVER (ESTIMATED)[1]						NUMBER OF BLIND ENUMERATED PER MILLION OF GENERAL POPULATION OF SAME SEX, MARITAL CONDITION, AND AGE				
	Total	Single	Married, widowed, or divorced				Single	Married, widowed, or divorced			
			Total	Married	Widowed	Divorced		Total	Married	Widowed	Divorced
	MALE										
15 years and over [2]	27,782	9,557	18,225	12,530	5,056	639	737	764	573	2,875	2,715
15 to 19 years	1,326	1,318	8	7	1	------	289	81	73	546	------
20 to 24 years	1,171	1,100	71	65	6	------	344	54	51	293	------
25 to 29 years	1,202	935	267	242	14	11	522	98	91	272	481
30 to 34 years	1,108	748	360	311	17	32	751	115	103	228	1,140
35 to 44 years	3,179	1,574	1,605	1,350	150	105	1,324	261	230	680	1,651
45 to 54 years	3,959	1,350	2,609	2,118	356	135	1,993	525	462	1,079	2,404
55 to 64 years	4,625	1,152	3,473	2,616	699	158	3,412	1,114	970	1,808	4,613
65 years and over	10,860	1,151	9,709	5,723	3,801	185	6,317	4,232	3,561	5,685	9,997
	FEMALE										
15 years and over [2]	20,622	7,403	13,219	5,308	7,683	228	770	518	249	1,961	834
15 to 19 years	1,093	1,080	13	11	2	------	261	21	18	163	------
20 to 24 years	903	855	48	41	6	1	395	19	17	92	35
25 to 29 years	825	684	141	128	13	------	652	40	38	111	------
30 to 34 years	781	550	231	201	23	7	935	69	64	150	174
35 to 44 years	1,852	1,011	841	664	147	30	1,317	140	122	303	400
45 to 54 years	2,185	780	1,405	970	389	46	1,678	321	270	526	947
55 to 64 years	3,100	877	2,223	1,277	887	59	3,412	792	680	979	2,516
65 years and over	9,587	1,256	8,331	1,956	6,289	86	7,242	3,669	2,356	4,396	8,950

[1] Distribution according to marital condition made on basis of per cent distribution of blind returning special schedules, as given in Table 37.
[2] Includes age not reported.

For both males and females in all age groups the ratio for the single is always greater than the ratio for those who have been married, the differences being most striking in the earlier periods, especially with females. In all groups, also, the ratio for the single is greater than for any one of the three marital classes except the divorced, among males after 29 and among females at 65 and over. In all cases except the very young the ratio for those in the present married state is the smallest of all the several marital classes.

Age when vision was lost.—In Table 41 is shown, for males and for females, the per cent distribution of the blind by marital condition and according to the age of occurrence of blindness.

TABLE 41.—BLIND POPULATION 15 YEARS OF AGE AND OVER, BY SEX AND AGE WHEN VISION WAS LOST—PER CENT DISTRIBUTION BY MARITAL CONDITION, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules. Base numbers in Table 104, p. 176]

AGE WHEN VISION WAS LOST	PER CENT OF BLIND POPULATION 15 YEARS OF AGE AND OVER [1]									
	Male					Female				
	Single	Married, widowed, or divorced				Single	Married, widowed, or divorced			
		Total	Married	Widowed	Divorced		Total	Married	Widowed	Divorced
Total	34.4	65.6	45.1	18.2	2.3	35.9	64.1	25.7	37.2	1.1
Under 20 years [2]	74.8	25.2	20.6	3.8	0.8	78.2	21.8	14.5	6.8	0.4
Under 15 years [2]	76.6	23.4	19.3	3.4	0.7	80.2	19.8	13.6	5.8	0.4
15 to 19 years	64.9	35.1	27.3	6.2	1.6	62.7	37.3	22.3	14.0	1.0
20 years or over	18.0	82.0	55.3	23.9	2.9	13.8	86.2	31.8	52.9	1.5
20 to 24 years	50.9	49.1	39.1	7.9	2.2	45.7	54.3	33.3	18.6	2.5
25 to 44 years [2]	26.1	73.9	55.5	14.1	4.3	21.2	78.8	47.0	29.7	2.1
45 to 64 years [2]	13.0	87.0	61.1	23.0	3.0	10.9	89.1	39.1	48.5	1.6
65 years or over [2]	6.2	93.8	52.0	40.5	1.3	8.4	91.6	15.7	74.9	1.0
Age not reported	45.8	54.2	33.8	18.5	2.0	50.7	49.3	16.4	32.4	0.5

[1] Based upon the population whose marital condition was reported, including the small number whose age at enumeration was not reported.
[2] Included under the appropriate age group are those reporting the period of life but not the exact age when vision was lost.

Here is indicated very clearly the extent to which blindness acts as a barrier to marriage. Among males and females alike marriage has taken place in direct ratio to the age of the loss of vision—that is, the later the age of this loss the greater is the proportion of those who have been married. Only one-fourth (25.2 per cent) of males and a little over one-fifth (21.8 per cent) of females whose sight was lost in childhood or youth, or under 20, have been married, while over four-fifths (82 per cent) of males and nearly nine-tenths (86.2 per cent) of females who lost sight in adult life, 20 years or over, have been married. Over nine-tenths of either sex (93.8 per cent for males and 91.6 per cent for females) who became blind in old age, or at 65 or over, have been married. Even though those losing sight at the earlier ages include some persons below the usual marrying age, which circumstance serves to reduce somewhat the proportion who might have been married, yet the situation is not greatly affected, as of blind persons who lost sight before 20 almost two-thirds have already passed that age (see Table 102, p. 174) and are at a time of life when marriage generally could have taken place.

The proportion who are widowed advances with each age period of the loss of vision, a condition doubtless possessing little special significance, reflecting only the general increase of widowhood with advancing years of life. The proportion divorced is greatest among males for those losing sight in early middle life and among females for those losing it at the beginning of adult life. If divorce is influenced at all by blindness in either party, the influence is most pronounced possibly not long after its occurrence.

EDUCATION

Statistical information with regard to the education of the blind must be regarded as not complete. This is due in part to a misunderstanding of the inquiries upon the subject by some to whom blindness had come after the period of schooling was past, who thought that the inquiries as to education related only to education in schools for the blind, an education which, of course, many of them had not had; others believed that the reference was only to education after the occurrence of blindness. In so far as it has been possible to determine from answers to other inquiries in the special schedules what the correct answers should have been to the questions as to general education, proper corrections have been made. The probable defects, however, in the figures relating to the education of the blind are to be kept in mind throughout.

Sex.—Table 42 gives, for the blind returning special schedules and for males and females separately, the number reporting as to the extent and the character of the education received, together with the per cent distribution for 1920 and 1910.

TABLE 42.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY SEX AND EDUCATION, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

EDUCATION	NUMBER, 1920 [1]			PER CENT DISTRIBUTION					
				1920			1910		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All classes	40,693	23,851	16,842						
Reporting as to education	40,286	23,615	16,671	100.0	100.0	100.0	100.0	100.0	100.0
Having attended school	20,432	12,481	7,951	50.7	52.9	47.7	43.1	43.8	42.2
Having attended special school or workshop for the blind	12,647	7,547	5,100	31.4	32.0	30.6	23.2	23.4	23.0
Having attended other schools also	3,923	2,528	1,395	9.7	10.7	8.4	6.5	7.4	5.3
Common school only	2,422	1,560	862	6.0	6.6	5.2	4.0	4.5	3.2
High school or academy	428	260	168	1.1	1.1	1.0	0.9	1.0	0.8
University or college	328	229	99	0.8	1.0	0.6	0.5	0.7	0.3
Schools of miscellaneous character	363	211	152	0.9	0.9	0.9	0.4	0.4	0.5
Schools of character not reported	382	268	114	0.9	1.1	0.7	0.7	0.9	0.5
Having attended no other school	8,724	5,019	3,705	21.7	21.3	22.2	16.7	16.0	17.7
Reporting no other instruction	8,197	4,749	3,448	20.3	20.1	20.7	16.2	15.6	17.1
Reporting instruction at home [2]	527	270	257	1.3	1.1	1.5	0.5	0.4	0.6
Not having attended special school or workshop for the blind	7,785	4,934	2,851	19.3	20.9	17.1	19.9	20.4	19.2
Having attended—									
Common school only	4,587	2,693	1,894	11.4	11.4	11.4	12.5	12.2	12.9
High school or academy	495	250	245	1.2	1.1	1.5	1.7	1.6	1.8
University or college	179	129	50	0.4	0.5	0.3	0.6	0.8	0.4
Schools of miscellaneous character	477	254	223	1.2	1.1	1.3	1.0	1.0	1.1
Schools of character not reported	2,047	1,608	439	5.1	6.8	2.6	4.1	4.8	3.2
Not having attended school	19,854	11,134	8,720	49.3	47.1	52.3	56.9	56.2	57.8
Reporting instruction at home [2]	1,249	610	639	3.1	2.6	3.8	2.0	1.8	2.3
Reporting no instruction	18,605	10,524	8,081	46.2	44.6	48.5	54.9	54.4	55.5
Not reporting as to education	407	236	171						

[1] Includes those whose age was not reported.

[2] Includes only those receiving instruction at home by private tutors, home teachers for the blind, or other special teachers; does not include cases where home instruction seemed to consist only of more or less desultory teaching by parents or other relatives.

Only about one-half (50.7 per cent) of all the blind are reported as having attended school. This statement, however, is to be taken in the light of what has just been said concerning known omissions in the returns. To the above proportion should be added the proportion who have received instruction at their homes, especially through private tutors or organized home teaching agencies (4.4 per cent). Occasional and unsystematic attempts by the family in this direction are not included.[24] There is thus a total of only 55.1 per cent of the blind over 5 years of age who reported any kind of instruction.

Of those who have attended school, about three-fifths (31.4 per cent of all the blind reporting) have received education at a special school or workshop for the blind. Most of these, not less than five-sixths, have been in schools, the workshops being largely for training in, or for the carrying on, of certain trades, with other instruction of a limited nature, and attended mainly by adults or older youths. The reason that the proportion attending institutions for the blind is not greater is simply that a very large number of the blind, as has previously been brought out, lost their sight after the age of schooling, or after the age of possible industrial training. The remaining two-fifths of the blind reporting (19.3 per cent of all) have attended general schools for persons who can see. The table shows that of those who have been educated at special institutions for the blind, two-thirds (21.7 per cent of all) have received their education exclusively at these institutions, though this proportion is doubtless somewhat too large, some of those whose blindness came on during the school age apparently having overlooked, in their reports, a previous attendance at schools for the seeing. Not quite three-tenths of the blind reporting (29 per cent) have had some of their schooling at general schools, whether exclusively or in addition to schooling at special institutions for the blind. This general education has most often been confined to the common schools, 17.4 per cent of the blind having had education here. A small proportion (2.3 per cent) have been to high school or academy, and an appreciable proportion (1.2 per cent) even to college or university. For 2.1 per cent attendance has been at schools of miscellaneous character—schools for the deaf, schools for the feeble-minded, unclassified private schools, and certain professional schools. For 6 per cent attendance has been at schools of unreported character. Except in the case of those who, besides attendance at special schools for the blind, have been to college or university also, the proportion is always greater for those who have not attended a school for the blind, but only other types, than for those who have attended both a school for the seeing and a school for the blind. The blind who have attended schools of both types embrace two groups—on the one hand, persons who, while in the possession of sight, had commenced their education with the seeing, but because of its loss had been compelled to resort to a special institution for the blind, this group including a certain number who lost sight in adult life and had recourse to a workshop for the blind, and, on the other hand, but of smaller number, persons who took up work at an institution for the seeing, possibly of a professional or technical nature, after a course at a special institution for the blind.

The record of school attendance is slightly better for males than for females. If, however, allowance is made for the fact that four-fifths of those in special schools are males, the respective proportions are found to be almost evenly matched. The apparent difference between the sexes remains fairly constant for most of the various kinds of schools attended. The proportion having had exclusive attendance at institutions for the blind is slightly higher for females than for males, doubtless in part because of the larger proportion of females who lost sight in early life (see Table 28), the usual time for attendance at the special

[24] Home teaching in some organized form was found in 1920 in about one-third of the States. In such States from one-tenth to one-third of the blind 20 years of age or over were affected by it.

institutions, and in part by reason of the relatively greater economic or physical independence of blind males, with consequently fewer difficulties in attending general institutions. Females have been also afforded home instruction to a larger extent than males, the percentage for the former being 5.3, as against 3.7 for the latter. Such instruction has always had special advantages for blind females—in fact, has often been designed with their needs particularly in view.

School attendance for the blind in 1920 is much improved over 1910, though the comparison is considerably affected by the fact of more complete returns for the latter year, resulting from clearer definitions and instructions; as regards home instruction, particularly, the returns for 1920 have fewer cases of desultory or haphazard instruction by family or friends. The greatest improvement is found in attendance at the special institutions for the blind. This condition is due in no small part to the increased efforts of these institutions to reach and bring into school all blind children of school age—these efforts in certain cases including the employment of "field agents" or "field officers"—as well as to the effects of compulsory education laws for the blind, which are being increasingly enacted.

Race and nativity.—In Table 43 are given the number and the percentage distribution, by school attendance, according to race and nativity groups.

TABLE 43.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY RACE, NATIVITY, AND EDUCATION, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

EDUCATION	BLIND PERSONS 5 YEARS OF AGE AND OVER [1]					
	All classes [2]	White			Negro	Indian
		Total	Native	Foreign-born		
	NUMBER					
All classes	40,693	36,435	30,108	6,327	3,924	306
Reporting as to education	40,286	36,060	29,810	6,250	3,897	301
Having attended school	20,432	19,014	16,692	2,322	1,332	75
Having attended special school or workshop for the blind	12,647	11,889	10,895	994	709	43
Having attended other schools also	3,923	3,735	3,372	363	170	17
Common school only	2,422	2,303	2,093	210	107	11
High school or academy	428	412	380	32	16	-
University or college	328	322	297	25	6	-
Schools of miscellaneous character	363	347	307	40	13	3
Schools of character not reported	382	351	295	56	28	3
Having attended no other school	8,724	8,154	7,523	631	539	26
Reporting no other instruction	8,197	7,657	7,103	554	509	26
Reporting instruction at home [3]	527	497	420	77	30	-
Not having attended special school or workshop for the blind	7,785	7,125	5,797	1,328	623	32
Having attended—						
Common school only	4,587	4,184	3,435	749	383	17
High school or academy	495	467	411	56	27	-
University or college	179	167	147	20	11	1
Schools of miscellaneous character	477	422	356	66	52	3
Schools of character not reported	2,047	1,885	1,448	437	150	11
Not having attended school	19,854	17,046	13,118	3,928	2,565	226
Reporting instruction at home [3]	1,249	1,147	960	187	98	4
Reporting no instruction	18,605	15,899	12,158	3,741	2,467	222
Not reporting as to education	407	375	298	77	27	5

See footnotes at end of table.

TABLE 43.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY RACE, NATIVITY, AND EDUCATION, FOR THE UNITED STATES: 1920—Continued

[Figures include only blind persons returning special schedules]

EDUCATION	BLIND PERSONS 5 YEARS OF AGE AND OVER [1]					
	All classes [2]	White			Negro	Indian
		Total	Native	Foreign-born		
	PER CENT DISTRIBUTION					
Reporting as to education	100.0	100.0	100.0	100.0	100.0	100.0
Having attended school	50.7	52.7	56.0	37.2	34.2	24.9
Having attended special school or workshop for the blind	31.4	33.0	36.5	15.9	18.2	14.3
Having attended other schools also	9.7	10.4	11.3	5.8	4.4	5.6
Common school only	6.0	6.4	7.0	3.4	2.7	3.7
High school or academy	1.1	1.1	1.3	0.5	0.4	-------
University or college	0.8	0.9	1.0	0.4	0.2	-------
Schools of miscellaneous character	0.9	1.0	1.0	0.6	0.3	1.0
Schools of character not reported	0.9	1.0	1.0	0.9	0.7	1.0
Having attended no other school	21.7	22.6	25.2	10.1	13.8	8.6
Reporting no other instruction	20.3	21.2	23.8	8.9	13.1	8.6
Reporting instruction at home [3]	1.3	1.4	1.4	1.2	0.8	-------
Not having attended special school or workshop for the blind	19.3	19.8	19.4	21.2	16.0	10.6
Having attended—						
Common school only	11.4	11.6	11.5	12.0	9.8	5.6
High school or academy	1.2	1.3	1.4	0.9	0.7	-------
University or college	0.4	0.5	0.5	0.3	0.3	0.3
Schools of miscellaneous character	1.2	1.2	1.2	1.1	1.3	1.0
Schools of character not reported	5.1	5.2	4.9	7.0	3.8	3.7
Not having attended school	49.3	47.3	44.0	62.8	65.8	75.1
Reporting instruction at home [3]	3.1	3.2	3.2	3.0	2.5	1.3
Reporting no instruction	46.2	44.1	40.8	59.9	63.3	73.8

[1] Includes those whose age was not reported.
[2] Includes "other colored," chiefly Chinese and Japanese.
[3] Includes only those receiving instruction at home by private tutors, home teachers for the blind, or other special teachers; does not include cases where home instruction seemed to consist only of more or less desultory teaching by parents or other relatives.

Much the best record in school attendance is that of native whites, with a proportion of 56 per cent. Foreign-born whites have proportions not greatly different from those for Negroes, or 37.2 per cent and 34.2 per cent, respectively. Indians are last, with a proportion of 24.9 per cent. These proportions reflect the general extent of education and of literacy among the several groups, though it should be remembered that with the foreign born the matter is affected somewhat by the considerable number who became blind relatively late in life and after the time of school attendance. (See Table 33.) The proportion is likewise highest for native whites with respect to attendance at a special institution for the blind, whether alone or in addition to other schooling. The proportion for attendance exclusively at schools other than those for the blind is largest for the foreign born. Home instruction is found in about the same order of the proportions, among the several groups, as general school attendance.[25]

Age.—In Table 44 are shown the number and the percentage distribution of the blind according to school attendance at different ages.

[25] There are proportionately larger numbers among foreign-born whites and Negroes, however, who reported home instruction.

TABLE 44.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY EDUCATION AND AGE, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

EDUCATION	BLIND PERSONS 5 YEARS OF AGE AND OVER								
	Total	5 to 9 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 44 years	45 to 64 years	65 years and over	Age not reported
	NUMBER								
All classes	40,693	1,057	2,044	2,074	1,677	7,119	10,913	15,384	425
Reporting as to education	40,286	1,010	2,015	2,064	1,665	7,091	10,852	15,192	397
Having attended school	20,432	654	1,767	1,838	1,433	4,920	5,230	4,390	200
Having attended special school or workshop for the blind	12,647	630	1,688	1,739	1,296	3,699	2,619	838	138
Having attended other schools also	3,923	73	407	550	429	1,266	893	288	17
Having attended no other school	8,724	557	1,281	1,189	867	2,433	1,726	550	121
Not having attended special school or workshop for the blind	7,785	24	79	99	137	1,221	2,611	3,552	62
Not having attended school	19,854	356	248	226	232	2,171	5,622	10,802	197
Not reporting as to education	407	47	29	10	12	28	61	192	28
	PER CENT DISTRIBUTION								
Reporting as to education	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Having attended school	50.7	64.8	87.7	89.1	86.1	69.4	48.2	28.9	50.4
Having attended special school or workshop for the blind	31.4	62.4	83.8	84.3	77.8	52.2	24.1	5.5	34.8
Having attended other schools also	9.7	7.2	20.2	26.6	25.8	17.9	8.2	1.9	4.3
Having attended no other school	21.7	55.1	63.6	57.6	52.1	34.3	15.9	3.6	30.5
Not having attended special school or workshop for the blind	19.3	2.4	3.9	4.8	8.2	17.2	24.1	23.4	15.6
Not having attended school	49.3	35.2	12.3	10.9	13.9	30.6	51.8	71.1	49.6

The best showing of all is made by the blind whose age is from 15 to 19; nine-tenths (89.1 per cent) of the entire number of the blind of this age are or have been in attendance at school. The proportions, however, for the age periods just below and just above, or from 10 to 14 and from 20 to 24, are but little less. The proportion from 5 to 9 is much smaller. The later age periods of life show a constant decrease with respect to school attendance, though the proportions are in fact much larger than are indicated by these figures, a considerable number in adult life, as we have seen, failing to report their education obtained before the oncoming of blindness. Very much the same order of the percentages is shown with respect to attendance at a special school for the blind, whether in addition to attendance at a general school or not, the proportions, however, showing an earlier rise for young blind children who have attended only a school for the blind and a much more pronounced fall for those in advanced years who have attended other schools as well. With respect to attendance entirely in the general schools the effect is generally the opposite, the proportions gradually increasing from the earliest age period. The better showing of the younger blind in attendance at the special institutions and of the older at institutions for the seeing is to be explained by the circumstance that the former had lost sight at a time when admission into an institution for the blind was possible, whereas the latter had often lost sight after such school age, and whatever education they have had, therefore, has been with the seeing.

The reason for the relatively low record of the blind for school attendance at the earlier ages of school life and for the relatively high proportions at later ages is that the school period with the blind is somewhat above that for ordinary children. Many at the earlier age have as yet not commenced their schooling, while many at the older age have remained at school up to a time when normal children have largely ceased attendance and a great portion of them have entered industrial life. The school career of blind children, furthermore, is of greater length, on the average, than that of children with sight. Not a few blind children of all ages are out of school, however, who should be there, in some States the proportions for these being reported as very considerable;[26] dropping out of school before the completion of the course is by no means infrequent. Hence, the blind as a whole have possibly had somewhat less schooling than the general population of all ages.

Table 45 shows the proportions of school attendance for the blind in broad age groups for 1920 as compared with 1910.

TABLE 45.—BLIND POPULATION 5 YEARS OF AGE AND OVER, CLASSIFIED AS UNDER OR OVER 20 YEARS OF AGE—PER CENT DISTRIBUTION BY EDUCATION, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

EDUCATION	BLIND PERSONS 5 YEARS OF AGE AND OVER [1]					
	1920			1910		
	Total	Under 20 years (5 to 19)	20 years and over	Total	Under 20 years (5 to 19)	20 years and over
Reporting as to education	100.0	100.0	100.0	100.0	100.0	100.0
Having attended school	50.7	83.7	45.9	43.1	70.5	40.5
Having attended special school or workshop for the blind	31.4	79.7	24.3	23.2	62.8	19.3
Having attended other schools also	9.7	20.2	8.3	6.5	11.3	6.1
Having attended no other school	21.7	59.5	16.0	16.7	51.5	13.3
Not having attended special school or workshop for the blind	19.3	4.0	21.6	19.9	7.7	21.1
Not having attended school	49.3	16.3	54.1	56.9	29.5	59.5

[1] Includes those whose age was not reported.

As between 1910 and 1920 a slightly greater improvement in school attendance is found for those under 20 years of age in the case of those who have attended a special school or workshop for the blind. This but confirms the statement previously made concerning the results of the efforts of the schools to draw pupils and of the compulsory education laws for the blind. There is a rather notable increase in the proportion of the blind under 20 who have attended other schools besides their own special schools, the proportion in fact having almost doubled. This may mean that the blind are having more and more recourse to other schools to complete their education or for professional training, though the increase is due in some degree to the constantly enlarging numbers of the blind in cities who are attending special classes in day schools, which are generally maintained in conjunction with the regular school systems. There has been a reduction in the proportion who have had no schooling at all and in the proportions reporting attendance at schools other than those for the blind.

Age when vision was lost.—In Table 46 are presented figures showing, for blind persons 5 years of age and over returning special schedules, the extent and character of education according to the age of the occurrence of blindness.

[26] Harry Best, The Blind: Their Condition and the Work Being Done for Them in the United States, 1919, p. 366.

TABLE 46.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY EDUCATION AND AGE WHEN VISION WAS LOST, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

EDUCATION	BLIND PERSONS 5 YEARS OF AGE AND OVER[1]											
	Total[2]	Losing vision at age of—										
		Less than 20 years						20 years or over				
		Total	Less than 5 years[3]	5 to 9 years	10 to 14 years	15 to 19 years	Indefinite[4]	Total	20 to 24 years	25 to 44 years[3]	45 to 64 years[3]	65 years or over[3]
	NUMBER											
Total	40,693	14,396	8,346	2,478	1,849	1,410	313	25,194	1,543	6,977	8,821	7,853
Reporting as to education	40,286	14,278	8,258	2,473	1,845	1,405	297	24,992	1,539	6,949	8,775	7,729
Having attended school	20,432	11,266	6,561	1,949	1,470	1,039	247	8,680	927	3,171	2,727	1,855
Having attended special school or workshop for the blind	12,647	10,153	6,283	1,754	1,187	705	224	2,195	471	1,172	466	86
Having attended other schools also	3,923	2,807	1,215	554	608	368	62	1,036	258	538	196	44
Common school	2,422	1,821	671	375	479	242	54	553	157	299	76	21
High school or academy	428	299	162	46	37	54	-	122	37	65	16	4
University or college	328	257	122	54	43	36	2	68	16	33	15	4
Schools of miscellaneous character	363	269	156	55	32	23	3	84	14	33	31	6
Schools of character not reported	382	161	104	24	17	13	3	209	34	108	58	9
Having attended no other school	8,724	7,346	5,068	1,200	579	337	162	1,159	213	634	270	42
Reporting no other instruction	8,197	7,084	4,911	1,159	548	309	157	900	179	515	180	26
Reporting instruction at home	527	262	157	41	31	28	5	259	34	119	90	16
Not having attended special school or workshop for the blind	7,785	1,113	278	195	283	334	23	6,485	456	1,999	2,261	1,769
Having attended—												
Common school only	4,587	757	140	129	225	244	19	3,707	298	1,168	1,243	998
High school or academy	495	59	21	6	5	25	2	428	38	131	139	120
University or college	179	10	6	3	-	1	-	165	14	53	56	42
Schools of miscellaneous character	477	134	62	29	23	19	1	333	12	115	124	82
Schools of character not reported	2,047	153	49	28	30	45	1	1,852	94	532	699	527
Not having attended school	19,854	3,012	1,697	524	375	366	50	16,312	612	3,778	6,048	5,874
Reporting instruction at home	1,249	219	100	37	35	40	7	1,013	61	365	426	161
Reporting no instruction	18,605	2,793	1,597	487	340	326	43	15,299	551	3,413	5,622	5,713
Not reporting as to education	407	118	88	5	4	5	16	202	4	28	46	124

See footnotes at end of table.

TABLE 46.— BLIND POPULATION 5 YEARS OF AGE AND OVER, BY EDUCATION AND AGE WHEN VISION WAS LOST, FOR THE UNITED STATES: 1920—Continued

[Figures include only blind persons returning special schedules]

EDUCATION	BLIND PERSONS 5 YEARS OF AGE AND OVER[1]											
	Total[2]	Losing vision at age of—										
		Less than 20 years						20 years or over				
		Total	Less than 5 years[3]	5 to 9 years	10 to 14 years	15 to 19 years	Indefinite[4]	Total	20 to 24 years	25 to 44 years[3]	45 to 64 years[3]	65 years or over[3]
	PER CENT DISTRIBUTION											
Reporting as to education	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Having attended school	50.7	78.9	79.5	78.8	79.7	74.0	83.2	34.7	60.2	45.6	31.1	24.0
Having attended special school or workshop for the blind	31.4	71.1	76.1	70.9	64.3	50.2	75.4	8.8	30.6	16.9	5.3	1.1
Having attended other schools also	9.7	19.7	14.7	22.4	33.0	26.2	20.9	4.1	16.8	7.7	2.2	0.6
Common school	6.0	12.8	8.1	15.2	26.0	17.2	18.2	2.2	10.2	4.3	0.9	0.3
High school or academy	1.1	2.1	2.0	1.9	2.0	3.8	----------	0.5	2.4	0.9	0.2	0.1
University or college	0.8	1.8	1.5	2.2	2.3	2.6	0.7	0.3	1.0	0.5	0.2	0.1
Schools of miscellaneous character	0.9	1.9	1.9	2.2	1.7	1.6	1.0	0.3	0.9	0.5	0.4	0.1
Schools of character not reported	0.9	1.1	1.3	1.0	0.9	0.9	1.0	0.8	2.2	1.6	0.7	0.1
Having attended no other school	21.7	51.4	61.4	48.5	31.4	24.0	54.5	4.6	13.8	9.1	3.1	0.5
Reporting no other instruction	20.3	49.6	59.5	46.9	29.7	22.0	52.9	3.6	11.6	7.4	2.1	0.3
Reporting instruction at home	1.3	1.8	1.9	1.7	1.7	2.0	1.7	1.0	2.2	1.7	1.0	0.2
Not having attended special school or workshop for the blind	19.3	7.8	3.4	7.9	15.3	23.8	7.7	25.9	29.6	28.8	25.8	22.9
Having attended—												
Common school only	11.4	5.3	1.7	5.2	12.2	17.4	6.4	14.8	19.4	16.8	14.2	12.9
High school or academy	1.2	0.4	0.3	0.2	0.3	1.8	0.7	1.7	2.5	1.9	1.6	1.6
University or college	0.4	0.1	0.1	0.1	----------	0.1	----------	0.7	0.9	0.8	0.6	0.5
Schools of miscellaneous character	1.2	0.9	0.8	1.2	1.2	1.4	0.3	1.3	0.8	1.7	1.4	1.1
Schools of character not reported	5.1	1.1	0.6	1.2	1.6	3.2	0.3	7.4	6.1	7.7	8.0	6.8
Not having attended school	49.3	21.1	20.5	21.2	20.3	26.0	16.8	65.3	39.8	54.4	68.9	76.0
Reporting instruction at home	3.1	1.5	1.2	1.5	1.9	2.8	2.4	4.1	4.0	5.3	4.9	2.1
Reporting no instruction	46.2	19.6	19.3	19.7	18.4	23.2	14.5	61.2	35.8	49.1	64.1	73.9

[1] Includes those whose age at enumeration was not reported.
[2] Includes those for whom the age when vision was lost was not reported.
[3] Included under the appropriate age groups are those reporting the period of life but not the exact age at which vision was lost. Of these, 219 became blind in infancy (under 5), 75 in earlier adult life (25 to 44), 108 in middle life (45 to 64), and 156 in old age (65 or over).
[4] Reported at losing vision in childhood or youth.

The results here are of much the same tenor as those just found in connection with present age. The proportion who had attended school for those losing sight in childhood or youth, or under 20, is more than twice the proportion for those losing sight in adult life, or at 20 or over, the respective percentages being 78.9 and 34.7. As already suggested, there is doubt as to the full accuracy of the figures for adults, on account of a misunderstanding of the question (see p. 61). The highest proportion of those attending school is for those becoming blind between 10 and 14 years of age, though the proportions are only slightly less when vision was lost earlier. When vision was lost at later periods the proportions steadily decrease. A much greater disparity exists with respect to attendance at the special schools for the blind between those losing sight in early life and those losing sight in adult life. In this case the proportion falls rapidly from the start, being almost insignificant for those deprived of vision in old age. As regards attendance at special schools for the blind and also at general schools, the proportion increases to the period 10 to 14 and decreases thereafter. As regards attendance at general schools alone, the proportion reaches its crest in early adult life. Home instruction is naturally the more extensive among persons whose blindness came on in adult life.

Table 47 gives for blind persons losing vision under and over 20 years of age the comparative proportions of schooling received, as reported at the censuses of 1920 and 1910.

TABLE 47.—BLIND POPULATION 5 YEARS OF AGE AND OVER, CLASSIFIED AS UNDER AND OVER 20 YEARS OF AGE WHEN VISION WAS LOST—PER CENT DISTRIBUTION BY EDUCATION, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

EDUCATION	BLIND PERSONS 5 YEARS OF AGE AND OVER,[1] LOSING VISION AT SPECIFIED AGES					
	1920			1910		
	All ages	Under 20 years (5 to 19)[2]	20 years or over[2]	All ages	Under 20 years (5 to 19)[2]	20 years or over[2]
Reporting as to education	100.0	100.0	100.0	100.0	100.0	100.0
Having attended school	50.7	78.9	34.7	43.1	70.6	30.1
Having attended special school or workshop for the blind	31.4	71.1	8.8	23.2	61.3	5.0
Having attended other schools also	9.7	19.7	4.1	6.5	13.9	3.0
Common school	6.0	12.8	2.2	4.0	8.6	1.8
High school or academy	1.1	2.1	0.5	0.9	2.0	0.4
University or college	0.8	1.8	0.3	0.5	1.2	0.2
Schools of miscellaneous character	0.9	1.9	0.3	0.4	1.1	0.1
Schools of character not reported	0.9	1.1	0.8	0.7	0.9	0.7
Having attended no other school	21.7	51.4	4.6	16.7	47.4	2.0
Reporting no other instruction	20.3	49.6	3.6	16.2	46.1	1.9
Reporting instruction at home	1.3	1.8	1.0	0.5	1.3	0.1
Not having attended special school or workshop for the blind	19.3	7.8	25.9	19.9	9.2	25.1
Having attended—						
Common school only	11.4	5.3	14.8	12.5	6.2	15.5
High school or academy	1.2	0.4	1.7	1.7	0.7	2.2
University or college	0.4	0.1	0.7	0.6	0.2	0.9
Schools of miscellaneous character	1.2	0.9	1.3	1.0	1.1	0.9
Schools of character not reported	5.1	1.1	7.4	4.1	1.1	5.6
Not having attended school	49.3	21.1	65.3	56.9	29.4	69.9
Reporting instruction at home	3.1	1.5	4.1	2.0	2.3	1.9
Reporting no instruction	46.2	19.6	61.2	54.9	27.2	68.0

[1] Includes those for whom the age at enumeration was not reported.
[2] Includes those for whom the age was indefinitely reported.

For 1920, as compared with statistics of school attendance for 1910, there are much larger proportions of blind persons who have attended school, both for those becoming blind before 20 and among those becoming blind in later life. These increases are, of course, offset by a corresponding decrease in each group for those who have had no schooling. The increase is indicated for all types of schools except attendance at general schools exclusively, a condition which would seem to show an increasing tendency among the blind, for at least a part of their education, to use the schools created especially for them. For those losing sight in adult life the proportions who are benefiting by home teaching have greatly increased.

READING OF RAISED PRINT

The blind can not read as do persons possessed of the sense of sight. With the blind the fingers have to take the place of the eyes. The process of acquiring this new method of reading is often a laborious one, especially to those whose blindness falls after the period of youth and schooling, at which time no small adjustment is necessary before tactile reading can be carried on with facility or comfort. Many experiments have been tried in the endeavor to find a device that would meet the needs of the blind with any considerable satisfaction. Of all the systems of raised print that have been evolved, the point system, or that composed of disconnected dots, has been found best adapted for the impress of the human finger. Difficulties remain with all systems, however, especially for the blind who lose their sight after their fingers have become hardened. In consequence, reading by the blind becomes something of an art, and quite different from reading from the printed page which lies before the eyes of those who have eyes to see. In any consideration of the problems of the blind, the extent of their ability to read by means of raised print assumes an important place.

Geographic divisions.—In Table 48 are shown for the United States and the several geographic divisions the number and per cent of the blind 5 years of age or over returning special schedules in 1920 who reported ability to read raised print, together with the per cent for 1910.

TABLE 48.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY ABILITY TO READ RAISED TYPE, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

GEOGRAPHIC DIVISION	Total, 1920 [1]	REPORTING AS TO ABILITY TO READ RAISED TYPE			
		Total, 1920	Reading raised type		
			Number, 1920	Per cent of total reporting	
				1920	1910
United States	40,693	39,738	11,934	30.0	21.4
New England	4,161	4,106	1,242	30.2	29.1
Middle Atlantic	7,771	7,634	2,918	38.2	27.3
East North Central	10,212	10,026	2,886	28.8	20.8
West North Central	4,847	4,790	1,321	27.6	21.8
South Atlantic	4,556	4,266	1,140	26.7	19.4
East South Central	3,354	3,196	671	21.0	13.5
West South Central	2,701	2,675	736	27.5	17.2
Mountain	1,394	1,377	379	27.5	16.0
Pacific	1,697	1,668	641	38.4	24.5

[1] Includes those whose age was not reported.

Without due consideration of all the facts it might seem rather surprising that less than one-third (30 per cent) of the blind population of the country can read any of the specially devised forms of raised type or print now in use. In view of the difficulties attached, however, this situation can more readily be understood. A great proportion of the blind, as has been shown before (Table 31), have lost their sight in middle and late life, when finger tips are calloused and when there

is often lacking the zeal and determination necessary to begin a new and arduous undertaking. It is quite apparent, nevertheless, that a very real, and to a great extent neglected, task lies before the country in making this reading knowledge possible for a larger proportion of the blind.

The best showing with respect to ability to read raised type is made by the blind in the Pacific and Middle Atlantic divisions, nearly two-fifths, or 38.4 per cent and 38.2 per cent, respectively, of their blind population having this ability. Then follow the New England division, with 30.2 per cent; the East North Central, with 28.8 per cent; the West North Central, with 27.6 per cent; the West South Central and the Mountain, each with 27.5 per cent; and the South Atlantic, with 26.7 per cent. The smallest percentage is in the East South Central division, with a proportion of a little over one-fifth, or 21 per cent. In some measure the foregoing order reflects the extent of literacy and also of attendance at school in the several geographic divisions of the United States.[27] In the South the proportions are seriously affected by the numbers of Negroes there, among whom literacy and schooling are relatively limited. Like conditions among the Indians may explain the relatively low proportion in the Mountain division.

An encouraging sign in the situation as to ability to read raised print is found in the considerably increased proportions over 1910. For the country as a whole the proportion in that year was only 21.4 per cent, as compared with 30 per cent in 1920. The increases in the main are greatest in the western portions of the country and least in the eastern. These increases in some part show the effects of home teaching, or systematic instruction carried directly into the homes of the blind, an enterprise that is gradually spreading over the country, together with increased efforts of the libraries of the land to put their printed matter at the disposal of the greatest possible number of blind persons.

Sex, race, and nativity.—Table 49 gives the number and per cent of the blind reporting ability to read raised print, by sex, race, and nativity, in 1920, together with the corresponding percentages for 1910.

The female blind read raised print to a greater extent than the male, the proportion for the former sex being 32.5 per cent, as against 28.3 per cent for the latter. This difference may be due in part to the greater sensitiveness of the fingers of the females, with the result that they acquire more readily the art of reading raised print; possibly, also, females have a generally greater interest in reading. The matter is affected to some extent by the larger proportions of females losing sight in youth, at a time when there was possible attendance at a special school for the blind, with its special attention to raised print.[28]

With respect to race and nativity, native whites present much the best record, having a proportion two and one-half times as great as the proportion for foreign-born whites and Negroes, the respective percentages being 35.5, 14.6, and 14.8. With the two last-named groups the proportions are larger for males than for females. The Indians have the lowest ranking of all, with a proportion of 10.9 per cent. In a certain degree these results reflect the extent of school attendance among the several groups, the proportion of each race and nativity group having some schooling showing a fairly close resemblance to the proportion reading raised print. (See Table 43.) Library facilities and the facilities for circulating reading matter among the blind in their own homes are less available on the whole for the Negroes and Indians than for the whites. Of foreign-born whites, moreover, a large proportion have lost their sight in adult life, when the acquisition of tactile print is generally not easy. In this group, also,

[27] See Fourteenth Census reports, Vol. II, Chs. XI and XII.

[28] From Table 28 the proportion of males losing vision when under 20 years of age is seen to be 34.6 per cent, while the corresponding proportion for females is 40.1 per cent.

are many who have but limited acquaintance with the English language, in which practically all raised print matter in the United States is published; they are in consequence specially handicapped in addition to the difficulty of blindness itself. The larger use of raised print by males than by females among foreign-born whites and Negroes may be due to wider opportunities for males, including facilities for learning it at some workshop maintained largely for adult males.

TABLE 49.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY ABILITY TO READ RAISED TYPE, BY SEX, RACE, AND NATIVITY, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

RACE, NATIVITY, AND SEX	Total, 1920[1]	REPORTING AS TO ABILITY TO READ RAISED TYPE			
		Total, 1920	Reading raised type		
			Number, 1920	Per cent of total reporting	
				1920	1910
All classes	[2] 40,693	39,738	11,934	30.0	21.4
Male	23,851	23,298	6,595	28.3	20.3
Female	16,842	16,440	5,339	32.5	23.1
White	36,435	35,609	11,335	31.8	23.4
Male	21,212	20,737	6,216	30.0	22.2
Female	15,223	14,872	5,119	34.4	25.2
Native	30,108	29,396	10,430	35.5	26.4
Male	17,333	16,923	5,655	33.4	25.0
Female	12,775	12,473	4,775	38.3	28.4
Foreign-born	6,327	6,213	905	14.6	11.0
Male	3,879	3,814	561	14.7	11.3
Female	2,448	2,399	344	14.3	10.4
Negro	3,924	3,798	561	14.8	8.5
Male	2,436	2,361	361	15.3	8.5
Female	1,488	1,437	200	13.9	8.6
Indian	306	303	33	10.9	3.8
Male	181	178	15	8.4	5.0
Female	125	125	18	14.4	1.3

[1] Includes those whose age was not reported.
[2] Includes 28 "other colored," chiefly Chinese and Japanese. Of these, 22 were males and 6 were females.

As compared with 1910, gains in the proportions are shown for all groups. The proportion for Indians has advanced greatly, but, on account of the larger numbers involved, the change in proportion for Negroes is more significant.

Age.—In Table 50 are presented the number and per cent of the blind reporting ability to read raised print in 1920, according to age, together with corresponding percentages for 1910.

As might be expected, the proportions reading raised type are the highest at the ages when blind persons are usually in attendance at their schools, the proportions, in fact, largely according with the proportions reported as in attendance at school at different ages. (See Table 44.) For each group between 10 and 24 years of age the proportions are approximately three-fourths. After the school ages the decline is rapid, only 2.2 per cent having the ability at 85 years and over. The small proportions able to use tactile print in late years are due, on the one hand, to the recentness of the affliction, many not having had sufficient opportunity for acquiring the system, and, on the other hand, to dulled sensitiveness of fingers and lessened interest in the matter.

Increases since 1910 in the proportions able to read raised print are general at all age periods, but most pronounced in the later ones, a circumstance which shows the increasing effects of home teaching.

TABLE 50.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY AGE AND ABILITY TO READ RAISED TYPE, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

AGE	Total, 1920	REPORTING AS TO ABILITY TO READ RAISED TYPE			
		Total, 1920	Reading raised type		
			Number, 1920	Per cent of total reporting	
				1920	1910
5 years and over	40,693	39,738	11,934	30.0	21.4
5 to 9 years	1,057	948	460	48.5	36.4
10 to 14 years	2,044	1,902	1,421	74.7	61.9
15 to 19 years	2,074	1,923	1,503	78.2	65.1
20 to 24 years	1,677	1,601	1,152	72.0	60.2
25 to 29 years	1,636	1,613	1,015	62.9	53.5
30 to 34 years	1,484	1,469	797	54.3	47.8
35 to 39 years	2,027	2,010	895	44.5	40.8
40 to 44 years	1,972	1,957	806	41.2	32.6
45 to 49 years	2,446	2,420	782	32.3	26.6
50 to 54 years	2,383	2,361	647	27.4	19.7
55 to 59 years	2,842	2,813	652	23.2	13.4
60 to 64 years	3,242	3,214	579	18.0	10.1
65 to 69 years	3,443	3,405	445	13.1	6.9
70 to 74 years	3,479	3,433	318	9.3	5.6
75 to 79 years	3,518	3,459	209	6.0	3.0
80 to 84 years	2,644	2,598	99	3.8	1.7
85 years and over	2,300	2,225	50	2.2	0.9
Age not reported	425	387	104	26.9	16.1

Age when vision was lost.—In consonance with the observations just made, the greatest proportions of the blind who read raised print may be expected among persons who lost their sight in the early years of life, or at a time when they could attend a special school for the blind where ample facilities were at hand for learning the process. The situation in this respect is brought out in Table 51, which gives, by age of the occurrence of blindness, the number and per cent reporting ability to read raised print in 1920, with comparative percentages for 1910.

The proportion of the blind reporting ability to read raised type is six times as great for those who lost sight under 20 years as for those losing sight after that age, or 65.2 per cent, as against 10.7 per cent. The proportions are highest for those becoming blind under 5 years of age, after which period there is a steady decline to the period from 15 to 19 years; after this age there is a sharp drop, and the decline continues regularly to the age of 65. In comparison with 1910, every period shows a certain increase, but this is most marked in adult life, the percentage for persons who lost sight at such time rising from 6.1 to 10.7. Here again the effects of home teaching are manifested.

Although one of the most important, if not, indeed, the most important, benefits ever conferred upon the blind has been the devising of a system of raised print, yet the satisfaction with which this great accomplishment may well be greeted is tempered by the discovery that there are in use not one single system but several

systems, resulting in additional confusion and difficulty in a problem already serious enough. Not less than six separate kinds of raised print have been employed in the United States, some of the blind being familiar with one and others with another, though there have always been a fair number who have found it possible to master more than one system, possibly several systems, thus to obtain an increased range of reading. Happily, however, as will be seen later, there has recently been evolved, as a sort of compromise, one general system which will gradually supplant all others.

TABLE 51.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY AGE WHEN VISION WAS LOST AND ABILITY TO READ RAISED TYPE, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

AGE WHEN VISION WAS LOST	Total, 1920 [1]	REPORTING AS TO ABILITY TO READ RAISED TYPE			
		Total, 1920	Reading raised type		
			Number, 1920	Per cent of total reporting	
				1920	1910
Total	40,693	39,738	11,934	30.0	21.4
Under 20 years	14,396	13,888	9,052	65.2	57.1
Under 5 years [2]	8,346	7,989	5,548	69.4	61.4
5 to 9 years	2,478	2,417	1,618	66.9	63.1
10 to 14 years	1,849	1,821	1,073	58.9	53.7
15 to 19 years	1,410	1,393	643	46.2	36.8
Age not definitely reported [3]	313	268	170	63.4	47.0
20 years or over	25,194	24,846	2,650	10.7	6.1
20 to 24 years	1,543	1,530	453	29.6	19.9
25 to 44 years [2]	6,977	6,916	1,151	16.6	9.9
45 to 64 years [2]	8,821	8,712	790	9.1	4.6
65 years or over [2]	7,853	7,688	256	3.3	1.6
Age not reported	1,103	1,004	232	23.1	12.6

[1] Includes those whose age at enumeration was not reported.
[2] Included under the appropriate age groups are those reporting the period of life, but not the exact age, at which vision was lost. Of these, 219 became blind in infancy (under 5), 75 in earlier adult life (25 to 44), 108 in middle life (45 to 64), and 156 in old age (65 or over).
[3] Reported as losing vision in childhood or youth.

Kind of type employed.—Table 52 gives, for blind persons 5 years o age and over of either sex, reporting ability to read raised type in 1920, the number and per cent distribution by kind of type actually employed. Comparative percentages for 1910 are shown for both sexes combined. The table necessarily has some duplications in figures, because some persons reported the use of more than one kind of type.

Of all the blind reading raised print, over three-fourths (77.8 per cent) confine their reading to one system only, while less than one-fourth (22.2 per cent) have knowledge of more than one system. Blind females have this broader acquaintance to a slightly greater extent than blind males, possibly because of their generally greater interest in tactile print and also because of the greater sensitiveness of their fingers, which allows them more readily to take up a second or a third system. When more than one type is read, the usual combination is a "point" system, either New York point or Braille, with either the line letter or "Moon" type, though by some of the blind both of the point systems can be read. A smaller proportion of the blind have extended their reading to more than one type than was the case in 1910, possibly as a result of the drift, already begun in 1910, toward a single system.

TABLE 52.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY SEX AND KIND OF RAISED TYPE READ, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

KIND OF TYPE READ	BLIND PERSONS 5 YEARS OF AGE AND OVER [1]								
	Number, 1920			Per cent distribution					
				1920			1910		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Total [2]	11,934	6,595	5,339	100.0	100.0	100.0	100.0	100.0	100.0
Reading one kind only	9,283	5,328	3,955	77.8	80.8	74.1	73.3	77.2	68.5
Reading more than one kind	2,651	1,267	1,384	22.2	19.2	25.9	26.7	22.8	31.5
Reporting kinds read:									
New York point	5,230	2,903	2,327	43.8	44.0	43.6	57.2	56.8	57.8
Braille	6,331	3,411	2,920	53.1	51.7	54.7	39.0	37.5	40.7
American	2,447	1,310	1,137	20.5	19.9	21.3	28.1	28.2	28.0
English or European	410	219	191	3.4	3.3	3.6	4.7	4.1	5.6
Revised grade 1½	1,304	679	625	10.9	10.3	11.7	([3])	([3])	([3])
Kind not reported	2,170	1,203	967	18.2	18.2	18.1	6.1	5.3	7.2
Line type or letter	876	382	494	7.3	5.8	9.3	23.9	20.3	28.5
Moon type	1,382	724	658	11.6	11.0	12.3	11.1	10.6	11.7
Kind not reported [4]	1,501	772	729	12.6	11.7	13.7	6.4	5.9	7.1

[1] Includes those whose age was not reported.
[2] The sum of the numbers reporting the various kinds of type exceeds the total number shown as reading raised type, by reason of the fact that 2,651 persons reported the reading of more than one kind.
[3] Not in use in 1910.
[4] Includes kinds not definitely reported.

As to the different kinds of type in use, the New York point, the oldest punctographic system in the United States and the system that has been more extensively employed here since its introduction than any other, is now losing its priority. It is yielding this to Braille, the system upon which is based the new general type designed to supersede all others. New York point at present claims a little over two-fifths (43.8 per cent) of blind readers, while Braille claims a little over one-half (53.1 per cent).

Of the several kinds of Braille, American Braille, devised in the United States, holds 20.5 per cent of blind readers; this proportion no doubt understates the situation, however, as most of the persons not reporting the kind of Braille employed should be included as well. The new Braille type referred to above, never before listed in census returns, is known as "Revised grade 1½," a modified form of English or European Braille. It was given this name because it is supposed to be intermediate between grade 1 and grade 2 in the English system as regards the number of contractions employed for words or phrases of frequent occurrence. This new system already shows a proportion of a little over one-tenth (10.9 per cent) of blind readers in the United States, a proportion which will rapidly mount in succeeding years as all other systems give way to it. The original English or European Braille (often called British Braille) has 3.4 per cent of all blind readers.

The foregoing forms of raised print are known as "punctographic," having a series of dots in various combinations to represent the letters of the alphabet. There are two other kinds of raised print, not formed by dots or "points," but composed of continuous lines. One of these, the "Line" type or letter, consists simply of the letters of the ordinary Roman alphabet impressed heavily upon paper, and this is naturally the oldest kind of type to be given to the blind. It is read by 7.3 per cent of their number in the United States. The other "letter" type is the "Moon" type, based on the ordinary alphabet, with some of its

characters outlines thereof, but with additional characters of rather arbitrary nature. It has 11.6 per cent of all blind readers. The reason for the smaller proportions for the two last-named types is that only limited instruction is given in them in the schools for the blind, their main use being in adult life, when persons accustomed to the regular Roman alphabet can take up less easily the point systems, based as they are, upon a more or less arbitrary code which requires special instruction.[29]

Only the New York point system has a greater proportion of male readers than of female. In all the other kinds of raised print the proportions for females are higher, notably in the case of Line type, possibly because of quicker response by females to this, the most difficult tangible system.

As compared with 1910, there is a falling off, proportionately, in the use of New York point and English Braille, and particularly of Line type, the latter doubtless being superseded by a dot system, and also by the Moon system, one easier to acquire. With the exception of the last-named type, the decrease in which, in fact, is only slight, all types are gradually passing into eclipse before revised Braille, the coming system of America. No decision as to the adoption of the new Braille was made until 1916,[30] and its introduction into the schools has been very gradual, so that the numbers reporting use of this system in 1920 are evidence of its usefulness.

In Table 53 are given, for the several geographic divisions of the country, the number of the blind reporting the use of one or more types and the kinds employed, together with the per cent distribution by kind of type in each division, and for those using each of the respective systems the per cent distribution by geographic divisions.

The proportion able to read more than one kind of type is greatest in the extreme eastern and in the extreme western parts of the country. New York point predominates over all other systems in the three southern divisions and the West North Central division, claiming over one-half of the blind readers in each of these sections; it is found also in all the other divisions, except the New England. In the last-named division Braille has much the largest following, being read by over four-fifths of all the blind reporting. In general, Braille shows its greatest strength where New York point is weakest, the former system having over one-half, in some cases considerably over one-half, of the total blind readers in all the divisions except those which have been specified as New York point strongholds. American Braille, a distinctively New England invention, has the greatest proportion of its readers in that section, though the western divisions are not far behind. The use of European Braille seems to depend in considerable degree upon the proportions of persons of foreign birth living in different areas. Revised grade 1½ already has had adoption to a greater or less extent in all divisions. In the Mountain division over one-fifth of the blind readers are familiar with it, while in other divisions it has likewise made considerable headway, though least in the South Atlantic and West South Central. Line letter prevails much the most extensively in New England, though in the southern divisions this kind of type was reported to an extent above the average for the country, the proportion for New England being about one-sixth of the total and for each

[29] Of the total number reporting the use of one kind only, the percentages for each type are as follows: New York point, 41.4; Braille, 39; American Braille, 16; English Braille, 1.2; revised Braille, 5.8; unspecified Braille, 16; Line type, 2.5; Moon type, 10.1; and indefinitely reported, 7.1. With respect to the use of each type in conjunction with others, the percentages are as follows: New York point, 52.4; Braille, 102.4; American Braille, 36.2; English Braille, 11.4; revised Braille, 29; unspecified Braille, 25.9; Line type, 24.4; Moon type, 16.9; and indefinitely reported, 31.6.

[30] Harry Best, The Blind: Their Condition and the Work Being Done for Them in the United States, 1919, p. 410.

TABLE 53.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY KIND OF TYPE READ, BY GEOGRAPHIC DIVISIONS: 1920

[Figures include only blind persons returning special schedules]

KIND OF TYPE READ	GEOGRAPHIC DIVISIONS									
	United States	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
	NUMBER READING RAISED TYPE [1]									
Total [2]	11,934	1,242	2,918	2,886	1,321	1,140	671	736	379	641
Reading one kind only	9,283	829	2,163	2,351	1,116	917	549	599	285	474
Reading more than one kind	2,651	413	755	535	205	223	122	137	94	167
Reporting kinds read:										
New York point	5,230	86	1,143	1,259	750	798	352	506	149	187
Braille	6,331	1,037	1,541	1,687	583	273	302	203	253	452
American	2,447	477	601	641	214	32	109	38	115	220
English or European	410	69	100	102	51	19	18	9	10	32
Revised grade 1½	1,304	115	359	396	127	58	65	26	83	75
Kind not reported	2,170	376	481	548	191	164	110	130	45	125
Line type or letter	876	198	147	185	60	103	74	74	10	25
Moon type	1,382	214	710	163	27	68	11	6	32	151
Kind not reported [3]	1,501	245	360	275	159	159	95	100	44	64
	PER CENT DISTRIBUTION BY KIND OF TYPE									
Total [2]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Reading one kind only	77.8	66.7	74.1	81.5	84.5	80.4	81.8	81.4	75.2	73.9
Reading more than one kind	22.2	33.3	25.9	18.5	15.5	19.6	18.2	18.6	24.8	26.1
Reporting kinds read:										
New York point	43.8	6.9	39.2	43.6	56.8	70.0	52.5	68.8	39.3	29.2
Braille	53.1	83.5	52.8	58.5	44.1	23.9	45.0	27.6	66.8	70.5
American	20.5	38.4	20.6	22.2	16.2	2.8	16.2	5.2	30.3	34.3
English or European	3.4	5.6	3.4	3.5	3.9	1.7	2.7	1.2	2.6	5.0
Revised grade 1½	10.9	9.3	12.3	13.7	9.6	5.1	9.7	3.5	21.9	11.7
Kind not reported	18.2	30.3	16.5	19.0	14.5	14.4	16.4	17.7	11.9	19.5
Line type or letter	7.3	15.9	5.0	6.4	4.5	9.0	11.0	10.1	2.6	3.9
Moon type	11.6	17.2	24.3	5.6	2.0	6.0	1.6	0.8	8.4	23.6
Kind not reported [3]	12.6	19.7	12.3	9.5	12.0	13.9	14.2	13.6	11.6	10.0
	PER CENT DISTRIBUTION BY GEOGRAPHIC DIVISIONS									
Total [2]	100.0	10.4	24.5	24.2	11.1	9.6	5.6	6.2	3.2	5.4
Reading one kind only	100.0	8.9	23.3	25.3	12.0	9.9	5.9	6.5	3.1	5.1
Reading more than one kind	100.0	15.6	28.5	20.2	7.7	8.4	4.6	5.2	3.5	6.3
Reporting kinds read:										
New York point	100.0	1.6	21.9	24.1	14.3	15.3	6.7	9.7	2.8	3.6
Braille	100.0	16.4	24.3	26.6	9.2	4.3	4.8	3.2	4.0	7.1
American	100.0	19.5	24.6	26.2	8.7	1.3	4.5	1.6	4.7	9.0
English or European	100.0	16.8	24.4	24.9	12.4	4.6	4.4	2.2	2.4	7.8
Revised grade 1½	100.0	8.8	27.5	30.4	9.7	4.4	5.0	2.0	6.4	5.8
Kind not reported	100.0	17.3	22.2	25.3	8.8	7.6	5.1	6.0	2.1	5.8
Line type or letter	100.0	22.6	16.8	21.1	6.8	11.8	8.4	8.4	1.1	2.9
Moon type	100.0	15.5	51.4	11.8	2.0	4.9	0.8	0.4	2.3	10.9
Kind not reported [3]	100.0	16.3	24.0	18.3	10.6	10.6	6.3	6.7	2.9	4.3

[1] Includes those whose age was not reported.

[2] The sum of the numbers reporting the various kinds of type exceeds the total number shown as reading raised type, by reason of the fact that 2,651 persons reported the reading of more than one kind of type.

[3] Includes kinds not definitely reported.

of the southern divisions about one-tenth. The Moon system has its greatest proportion of followers in the Middle Atlantic, Pacific, and New England divisions, where it is used by from one-fourth to one-sixth of the blind. This situation is very likely because of the greater development of home teaching in the divisions named, the Moon type being especially suitable under such instruction for blind persons in advanced years. There appears to be but rather limited use of this form of raised print in the remainder of the country.

Table 54 gives the number of the blind making report as to ability to read one or more kinds of type and as to the kinds read, according to race and nativity classes, and Table 55 gives the respective percentages for each kind of type, for 1920 and 1910.

TABLE 54.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY RACE, NATIVITY, AND KIND OF TYPE READ, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

KIND OF TYPE READ	BLIND PERSONS 5 YEARS OF AGE AND OVER[1]					
	All classes[2]	White			Colored	
		Total	Native	Foreign-born	Negro	Indian
Total[3]	11,934	11,335	10,430	905	561	33
Reading one kind only	9,283	8,781	8,097	684	475	24
Reading more than one kind	2,651	2,554	2,333	221	86	9
Reporting kinds read:						
New York point	5,230	4,919	4,629	290	300	9
Braille	6,331	6,141	5,673	468	156	31
American	2,447	2,391	2,209	182	41	14
English or European	410	406	352	54	4	----
Revised grade 1½	1,304	1,259	1,185	74	33	10
Kind not reported	2,170	2,085	1,927	158	78	7
Line type or letter	876	819	762	57	55	1
Moon type	1,382	1,309	1,070	239	73	----
Kind not reported[4]	1,501	1,413	1,280	133	84	2

[1] Includes those whose age was not reported.
[2] Includes "other colored," chiefly Chinese and Japanese.
[3] The sum of the numbers reporting the various kinds of type exceeds the total number shown as reading raised type, by reason of the fact that 2,651 persons reported the reading of more than one kind.
[4] Includes kinds not definitely reported.

The foreign-born white have the highest proportion able to read more than one type at both censuses, the proportions for the native whites, however, being very close. Both these groups have considerably higher proportions than have Negroes. There has been a decrease in this regard since 1910 for all three classes, the greatest, proportionately, being for Negroes.

Over one-half of the whites use Braille, and over one-half of the Negroes use New York point. European Braille is found most often with the foreign born, some of them possibly having been familiar with it before coming to America. Revised Braille has reached its largest development so far among native whites. Line letter is employed more often by Negroes than by either of the white groups. Moon type has over twice as large a proportion among the foreign born as among either of the other two classes, a situation explained by the fact that most of the foreign-born blind lose their sight in adult life, after the period of schooling is past and when this form of raised print is most easily acquired.

In all classes since 1910 a loss is shown for New York point and a corresponding gain for Braille, though only through the adoption since 1910 of the new revised Braille, the other types losing. Line letter shows a heavy loss for all classes, and the Moon type a gain, though very slight.

TABLE 55.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY RACE AND NATIVITY—PER CENT DISTRIBUTION BY KIND OF TYPE READ, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

KIND OF TYPE READ	BLIND POPULATION 5 YEARS OF AGE AND OVER READING RAISED TYPE[1]							
	1920				1910			
	White			Negro	White			Negro
	Total	Native	Foreign-born		Total	Native	Foreign-born	
Total [2]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Reading one kind only	77.5	77.6	75.6	84.7	73.0	73.1	71.8	79.3
Reading more than one kind	22.5	22.4	24.4	15.3	27.0	26.9	28.2	20.7
Reporting kinds read:								
New York point	43.4	44.4	32.0	53.5	57.1	58.0	48.3	60.3
Braille	54.2	54.4	51.7	27.8	40.0	39.5	45.6	18.7
American	21.1	21.2	20.1	7.3	28.9	29.0	28.0	12.0
English or European	3.6	3.4	6.0	0.7	4.9	4.4	9.8	1.7
Revised grade 1½	11.1	11.4	8.2	5.9	[3]	[3]	[3]	[3]
Kind not reported	18.4	18.5	17.5	13.9	6.2	6.1	7.7	5.0
Line type or letter	7.2	7.3	6.3	9.8	23.9	24.4	18.3	25.0
Moon type	11.5	10.3	26.4	13.0	11.1	10.0	22.0	9.3
Kind not reported [4]	12.5	12.3	14.7	15.0	6.2	6.2	6.4	10.0

[1] Includes those whose age was not reported.
[2] The sum of the numbers reporting the various kinds of type exceeds the total number shown as reading raised type by reason of the fact that numerous persons reported the reading of more than one kind.
[3] Not in use in 1910.
[4] Includes kinds not definitely reported.

In Table 56 is shown the number of the blind at different age periods, distributed according to their acquaintance with raised print, together with the per cent distribution for 1920 and 1910.

The proportion able to read more than one kind of type constantly advances with each age period up to 45–64 years, with a decline in the eldest group. New York point holds first place from 45 to 64, or in late middle life. Braille is in greatest use during the years of schooling, especially the earlier years, and during early middle life. The large use of Braille over such a long period of life is made possible by the continued extensive employment of American Braille by those who had learned it at school in the preceding generation, and by the wide introduction of revised Braille among blind pupils now in attendance at school. One-third of the blind from 5 to 9 years of age are now given the modern general type. The new system is at the same time showing substantial progress at practically all age periods. The line types are, of course, found most often in the later years of life. The larger use of line letter at that age period is accounted for by the fact that it was the first type to be employed in this country, and consequently has a relatively greater number of users among the older blind. Moon type, a form having distinct advantages for adults because not so difficult to learn, is read by an almost negligible percentage of the blind under 25, and by comparatively few even under 45. On the other hand, over one-fifth (21.5 per cent) from 45 to 64 employ it, and almost one-half (47 per cent) after 64. Because of its relative simplicity, Moon type is mainly given to the adult blind when their fingers have not sufficient sensitiveness for the acquirement of a punctographic system.

TABLE 56.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY AGE AND KIND OF TYPE READ, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

KIND OF TYPE READ	BLIND PERSONS 5 YEARS OF AGE AND OVER							
	Total [1]	5 to 9 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 44 years	45 to 64 years	65 years and over
	NUMBER: 1920							
Total [2]	11,934	460	1,421	1,503	1,152	3,513	2,660	1,121
Reading one kind only	9,283	445	1,267	1,262	912	2,575	1,858	881
Reading more than one kind	2,651	15	154	241	240	938	802	240
Reporting kinds read:								
New York point	5,230	76	456	696	613	1,901	1,178	272
Braille	6,331	355	1,012	902	706	1,919	1,055	332
American	2,447	51	316	411	344	830	376	104
English or European	410	10	23	18	37	161	118	42
Revised grade 1½	1,304	153	309	166	125	314	177	55
Kind not reported	2,170	141	364	307	200	614	384	131
Line type or letter	876	3	25	49	32	264	370	129
Moon type	1,382	--------	5	11	23	236	572	527
Kind not reported [3]	1,501	41	88	113	82	476	501	174
	PER CENT DISTRIBUTION: 1920							
Total [2]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Reading one kind only	77.8	96.7	89.2	84.0	79.2	73.3	69.8	78.6
Reading more than one kind	22.2	3.3	10.8	16.0	20.8	26.7	30.2	21.4
Reporting kinds read:								
New York point	43.8	16.5	32.1	46.3	53.2	54.1	44.3	24.3
Braille	53.1	77.2	71.2	60.0	61.3	54.6	39.7	29.6
American	20.5	11.1	22.2	27.3	29.9	23.6	14.1	9.3
English or European	3.4	2.2	1.6	1.2	3.2	4.6	4.4	3.7
Revised grade 1½	10.9	33.3	21.7	11.0	10.9	8.9	6.7	4.9
Kind not reported	18.2	30.7	25.6	20.4	17.4	17.5	14.4	11.7
Line type or letter	7.3	0.7	1.8	3.3	2.8	7.5	13.9	11.5
Moon type	11.6	--------	0.4	0.7	2.0	6.7	21.5	47.0
Kind not reported [3]	12.6	8.9	6.2	7.5	7.1	13.5	18.8	15.5
	PER CENT DISTRIBUTION: 1910							
Total [2]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Reading one kind only	73.3	94.6	91.3	81.4	75.4	67.9	66.1	79.2
Reading more than one kind	26.7	5.4	8.7	18.6	24.6	32.1	33.9	20.8
Reporting kinds read:								
New York point	57.2	47.0	53.6	62.4	64.3	69.3	46.6	22.1
Braille	39.0	43.8	43.7	42.9	48.2	38.8	36.7	21.2
American	28.1	40.0	40.5	39.3	40.5	27.2	19.2	7.9
English or European	4.7	0.5	0.6	0.3	3.8	5.3	8.7	4.0
Kind not reported	6.1	3.2	2.6	3.3	3.9	6.3	8.8	9.3
Line type or letter	23.9	4.3	7.9	12.6	15.8	24.9	37.7	29.8
Moon type	11.1	0.5	0.4	0.8	3.6	7.2	19.7	44.4
Kind not reported [3]	6.4	9.7	4.2	4.5	3.8	6.7	7.7	8.6

[1] Includes those whose age was not reported.
[2] The sum of the numbers reporting the various kinds of type exceeds the total number shown as reading raised type by reason of the fact that numerous persons reported the reading of more than one kind.
[3] Includes kinds not definitely reported.

As compared with 1910, the proportion of the blind able to read more than one type has become smaller at all ages except that from 10 to 14 and at 65 and over. For the former period a possible explanation may be that children who had started to a school for the blind and had begun to acquire an older system are now taking up the new modified form of Braille. Both New York point and

American Braille show losses in all periods except the last, these losses being very heavy in the earlier years, all of which indicates that the schools are turning to the new system. European Braille appears to gain a little in the early period, possibly because of lack of definiteness in reporting, revised Braille being much like European Braille. Line letter registers losses throughout life, and possibly before many years this form of type for the blind will all but entirely disappear. Moon type is less used in the earlier years of life, but, because of the extension of home teaching, slightly more in the later.

In Table 57 is given a similar distribution by kind of type reported, in connection with the age of the occurrence of blindness, as reported in 1920.

TABLE 57.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY AGE WHEN VISION WAS LOST AND KIND OF TYPE READ, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

KIND OF TYPE READ	BLIND PERSONS 5 YEARS OF AGE AND OVER READING RAISED TYPE [1]											
	Total	Losing vision at—										
		Less than 20 years of age						20 years of age or over				
		Total	Less than 5 years [2]	5 to 9 years	10 to 14 years	15 to 19 years	Indefinite [3]	Total	20 to 24 years	25 to 44 years [2]	45 to 64 years [2]	65 years or over [2]
	NUMBER											
Total [4]	11,934	9,052	5,548	1,618	1,073	643	170	2,650	453	1,151	790	256
Reading one kind only	9,283	6,901	4,210	1,189	832	529	141	2,181	381	934	639	227
Reading more than one kind	2,651	2,151	1,338	429	241	114	29	469	72	217	151	29
Reporting kinds read:												
New York point	5,230	4,379	2,623	786	558	355	57	752	211	379	139	23
Braille	6,331	5,073	3,200	930	532	292	119	1,150	226	584	295	45
American	2,447	1,996	1,205	393	222	126	50	398	80	206	103	9
English or European	410	310	189	70	29	21	1	95	20	52	20	3
Revised grade 1½	1,304	1,075	730	164	100	44	37	215	37	98	70	10
Kind not reported	2,170	1,692	1,076	303	181	101	31	442	89	228	102	23
Line type or letter	876	828	540	164	90	26	8	41	6	25	7	3
Moon type	1,382	304	151	61	42	43	7	1,049	57	349	453	190
Kind not reported [5]	1,501	1,225	738	249	151	71	16	239	35	97	78	29
	PER CENT DISTRIBUTION											
Total [4]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Reading one kind only	77.8	76.2	75.9	73.5	77.5	82.3	82.9	82.3	84.1	81.1	80.9	88.7
Reading more than one kind	22.2	23.8	24.1	26.5	22.5	17.7	17.1	17.7	15.9	18.9	19.1	11.3
Reporting kinds read:												
New York point	43.8	48.4	47.3	48.6	52.0	55.2	33.5	28.4	46.6	32.9	17.6	9.0
Braille	53.1	56.0	57.7	57.5	49.6	45.4	70.0	43.4	49.9	50.7	37.3	17.6
American	20.5	22.1	21.7	24.3	20.7	19.6	29.4	15.0	17.7	17.9	13.0	3.5
English or European	3.4	3.4	3.4	4.3	2.7	3.3	0.6	3.6	4.4	4.5	2.5	1.2
Revised grade 1½	10.9	11.9	13.2	10.1	9.3	6.8	21.8	8.1	8.2	8.5	8.9	3.9
Kind not reported	18.2	18.7	19.4	18.7	16.9	15.7	18.2	16.7	19.6	19.8	12.9	9.0
Line type or letter	7.3	9.1	9.7	10.1	8.4	4.0	4.7	1.5	1.3	2.2	0.9	1.2
Moon type	11.6	3.4	2.7	3.8	3.9	6.7	4.1	39.6	12.6	30.3	57.3	74.2
Kind not reported [5]	12.6	13.5	13.3	15.4	14.1	11.0	9.4	9.0	7.7	8.4	9.9	11.3

[1] Includes those whose age at enumeration was not reported.

[2] Included under the appropriate age groups are those whose schedules indicated the period of life, but not the exact age, at which vision was lost. Of these, 219 became blind in infancy (under 5), 75 in early adult life (25 to 44), 108 in middle life (45 to 54), and 156 in old age (65 or over).

[3] Reported as losing vision in childhood or youth.

[4] The sum of the numbers reporting the various kinds of type exceeds the total number shown as reading raised type by reason of the fact that 2,651 persons reported the reading of more than one kind of type.

[5] Includes kind not definitely reported.

The statistics here largely confirm the findings of the previous table. A somewhat greater proportion of the blind who lost sight under 20 years can read more than one type than is the case for those whose blindness came later. All the types, except English Braille and Moon, show greater proportions of readers among those who became blind in childhood and youth than among those who became so in adult life. New York point stands first with those losing sight in youth, or from 10 to 19 years; and Braille among those losing sight in childhood, or under 9 years, and in middle life, or from 25 to 44. These two types can be read by one-half or more of the blind losing vision at the periods indicated. Among those becoming blind in adult life, or after 20 years, Braille is in the lead. With advanced years the proportions for both of the point systems decline rapidly, though both have a considerable number of adherents up to 65 years. A possible reason for the ascendancy of Braille over New York point in adult life is that the former is the kind of point type employed mostly in the sections where home teaching is conducted. American Braille, together with unspecified Braille, on the whole declines gradually with the years, but having at least one-eighth of blind readers up to the period 65 and over. English Braille has its highest proportion among those losing sight in early adult life, though even here the proportion is relatively small. Revised Braille, as the newest system of raised print, naturally has the highest proportion for those losing sight at the earliest period, and the smallest for those losing sight in old age. That it is already being taught to all groups of the blind is indicated by the fact that in practically all the periods of loss of sight under 65 years it can be read by one-twelfth or more of the blind. Line letter is read by six times as many losing sight before 20 as those losing it after that age. In general, it shows a rapid decline through life, indicating that it is now largely read by survivors among the blind who learned it in years past. The Moon type is preponderantly the form of raised print adopted by persons becoming blind in adult life. The proportion using it whose blindness occurred after 20 is over 10 times as great as is the proportion whose blindness occurred at an earlier time. The proportion slowly rises till the beginning of adult life, after which it rapidly mounts until it amounts to nearly three-fifths of blind readers who lost sight in late adult life, or from 45 to 64, and nearly three-fourths of those losing it in old age, or at 65 and over. With both these groups Moon type is used far more than any other. The reasons for this have already been given.

In Table 58 are shown the number and per cent distribution of the blind according to their ability to read raised print, in relation to their attendance at school, and the percentage which the differently educated groups constitute of the total reading raised type.

As would be expected, by far the best showing as to ability to read raised print is found among persons who have attended a special school for the blind. Over four-fifths (82.7 per cent) of such persons have this ability; of those who have attended other schools, only 8.4 per cent; of those who have received instruction at home, 69.8 per cent; and of those who reported no instruction, 1.6 per cent. The reason that the proportion is so high for those having instruction at their homes is that such instruction consists largely of just this use of raised print.

Of all the blind able to use raised print, almost five-sixths (84.8 per cent) have been at a special institution for the blind, while about one-fifth (19 per cent) of the blind who have attended such institutions are able to read more than one type. This is generally about the ratio for each group between the proportion able to read raised print and the proportion able to read more than one kind.[31]

[31] At the special institutions instruction was formerly often given in more than one system of reading, generally a point and a line system. Instruction is also given, to a certain extent, in some of the schools in regular long-hand writing as used by the seeing.

TABLE 58.—BLIND POPULATION 5 YEARS OF AGE AND OVER, BY EDUCATION AND ABILITY TO READ RAISED TYPE, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

ABILITY TO READ RAISED TYPE	BLIND PERSONS 5 YEARS OF AGE AND OVER[1]					
	Total	Having attended school		Not having attended school		Not reporting as to education
		Special school or workshop for the blind	Other schools only	Reporting private instruction at home	Reporting no instruction	
	NUMBER					
Total	40,693	12,647	7,785	1,249	18,605	407
Reading raised type	11,934	10,114	646	867	297	10
Reading one kind only	9,283	7,792	537	701	244	9
Reading more than one kind	2,651	2,322	109	166	53	1
Not reading raised type	27,804	2,116	7,055	375	18,081	177
Not reporting as to ability to read raised type	955	417	84	7	227	220
	PER CENT DISTRIBUTION[2]					
Total	100.0	100.0	100.0	100.0	100.0	100.0
Reading raised type	30.0	82.7	8.4	69.8	1.6	5.3
Reading one kind only	23.4	63.7	7.0	56.4	1.3	4.8
Reading more than one kind	6.7	19.0	1.4	13.4	0.3	0.5
Not reading raised type	70.0	17.3	91.6	30.2	98.4	94.7
	PER CENT OF TOTAL[3]					
Total	100.0	31.4	19.3	3.1	46.2	----
Reading raised type	100.0	84.8	5.4	7.3	2.5	----
Reading one kind only	100.0	84.0	5.8	7.6	2.6	----
Reading more than one kind	100.0	87.6	4.1	6.3	2.0	----
Not reading raised type	100.0	7.7	25.5	1.4	65.4	----
Not reporting as to ability to read raised type	100.0	56.7	11.4	1.0	30.9	----

[1] Includes those whose age was not reported.
[2] Based upon the population reporting as to ability to read raised type.
[3] Based upon the population reporting as to education.

ECONOMIC CONDITION

The most important consequence to society arising from the existence of blindness in its midst lies in the circumstance that as sight is such an essential physical faculty in the ordinary pursuits of men and in their general industrial life, those who lack it in a very large proportion must perforce remain outside the ranks of independent breadwinners, constituting a dependent element in the community. In the vast number of the occupations of men vision constitutes such an indispensable qualification that those bereft of it either are effectually precluded from entering upon them or do so under a great handicap. In other words, even if it does not totally disqualify persons suffering under it from the field of economic employment, blindness lays such a heavy hand upon them that the field, even when not actually closed, becomes narrowly circumscribed. The task of securing remunerative employment by the blind thus becomes very difficult, and their earning power exceedingly restricted. It is the purpose of the tables and the discussion that follow to bring out some of the consequences of blindness in the industrial situation.

Comparison with general population.—In Table 59 are shown for both males and females, and for the several race and nativity groups, the number and the percentage of the blind 10 years of age and over who are gainfully employed, in 1920 and in 1910, as compared with the general population.

TABLE 59.—BLIND POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY SEX, RACE, AND NATIVITY, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

RACE AND NATIVITY	BLIND PERSONS 10 YEARS OF AGE AND OVER [1]								PER CENT GAINFULLY OCCUPIED IN GENERAL POPULATION 10 YEARS OF AGE AND OVER, SAME RACE AND NATIVITY, 1920 [1]	
	Number, 1920				Per cent of total gainfully occupied					
	Total		Gainfully occupied		1920		1910			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All classes [2]	23,251	16,385	5,907	1,270	25.4	7.8	24.5	5.8	78.2	21.1
White	20,655	14,798	5,297	1,167	25.6	7.9	25.1	5.9	77.9	19.2
Native	16,782	12,355	4,490	1,045	26.8	8.5	26.7	6.2	75.1	19.3
Foreign-born	3,873	2,443	807	122	20.8	5.0	18.9	5.0	89.3	18.4
Negro	2,396	1,457	583	95	24.3	6.5	21.3	4.7	81.1	38.9
Indian	179	124	23	5	12.8	4.0	14.9	4.8	58.4	11.5

[1] Includes those whose age was not reported.
[2] Includes "other colored," chiefly Chinese and Japanese.

One-fourth (25.4 per cent) of blind males are found to be gainfully employed, a proportion not quite one-third of that for the general population (78.2 per cent). Among females the proportion is less than one-twelfth (7.8 per cent), a proportion a little over one-third of that for the general population (21.1 per cent). In comparing the proportion of the blind and of the general population gainfully occupied, it must be borne in mind that a very great number of the blind are in advanced life, too old in any event for gainful employment. If these be removed from the calculations, the difference between the proportions for each group is consider-

ably reduced. On the other hand, as will appear later, the extent to which the blind so reported are actually engaged in gainful employment is greatly limited, with not a few this employment being little more than nominal.

Among blind males native whites present the best showing as to gainful occupation in relation to the other groups (26.8 per cent), a showing all the more significant for the reason that in the general population this group has proportionately fewer employed than any other save the Indians. Negroes come next, with a proportion (24.3 per cent) relatively much less, however, than that in the general population. Foreign-born whites are third among the blind (20.8 per cent), though in the general population their proportion is considerably the highest of all. The low proportion for Indians (12.8 per cent) is in keeping with their low proportion in the general population. The relatively high proportion for native whites is doubtless due in part at least to their more extensive participation in agriculture, in which occupation many of the blind remain, apparently, after the loss of sight.

Among blind females the ranking is much the same, though for Negroes, instead of the excessive proportion shown in the case of the general population, the proportion with the blind appears to be but normal, an indication of the restriction which blindness imposes upon participation in economic activities even among this group.

There is a slight gain in the proportion of blind males gainfully employed in 1920 over the 1910 figure, this being shown for all the several groups except the Indians. The most considerable gain is made among Negroes. Among females the general gain is somewhat larger than among males, though foreign-born whites show no change, while the Indians record a loss. Possibly the increase for blind females only reflects to a certain extent the increase in gainful occupation for females in general.

Occupational groups by sex.—In Table 60 is shown the percentage distribution in 1920 and 1910 of the blind and of the general population, and of males and females separately, in broad occupational groups.

TABLE 60.—BLIND POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY SEX—PER CENT DISTRIBUTION, BY OCCUPATIONAL GROUPS, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

OCCUPATIONAL GROUP	POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED [1]								
	Blind population						General population, 1920		
	1920			1910					
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture, forestry, and animal husbandry	13.2	14.6	6.6	18.9	20.8	7.3	26.3	29.8	12.7
Extraction of minerals	0.2	0.2	------	0.3	0.3	------	2.6	3.3	[2]
Manufacturing and mechanical industries	43.1	41.8	48.8	30.1	27.9	43.6	30.8	32.9	22.6
Transportation	1.5	1.6	1.4	1.4	1.4	1.3	7.4	8.6	2.5
Trade	17.6	20.8	2.7	22.3	24.8	7.6	10.2	10.8	7.8
Public service	0.5	0.5	0.5	0.3	0.3	0.1	1.9	2.3	0.3
Professional service	14.0	12.7	20.0	15.7	14.6	22.5	5.2	3.4	11.9
Domestic and personal service	5.5	3.8	13.2	7.4	6.2	14.4	8.2	3.7	25.6
Clerical occupations	3.9	3.5	5.8	[3]	[3]	[3]	7.5	5.1	16.7
Unclassifiable	0.6	0.5	0.9	3.6	3.7	3.1	------	------	------

[1] Includes those whose age was not reported.
[2] Less than one-tenth of 1 per cent.
[3] Not separately shown in 1910.

Here certain light may be thrown upon the relative extent of the handicap which blindness imposes in the principal industrial pursuits. In manufacturing and mechanical industries are much the largest proportions of the blind who are gainfully employed (43.1 per cent). While these are the callings which have the largest representation in the population as a whole, in the latter case the lead is by no means so great as with the blind. The next highest proportion is in trade, the proportion with the blind (17.6 per cent) being also considerably larger than with the general population. In professional service, with the third highest proportion (14 per cent), the relative excess for the blind is greatest of all, the proportion with them being nearly three times as high as with the general population. In all the remaining groups the proportion for the blind is less than for the general population. In agriculture the proportion for the former (13.2 per cent) is about one-half that for the latter. In domestic and personal service the proportion (5.5 per cent) is considerably smaller. In clerical occupations the proportion (3.9 per cent) is also about one-half. With the blind the proportion engaged in transportation pursuits (1.5 per cent) is only about one-fifth of that with the general population. The representation of the blind in this class of occupations is relatively the least of all, with the exception of extraction of minerals, in which occupation are reported very few of the blind (0.2 per cent). In public service the proportion for the blind (0.5 per cent) is about one-fourth of that for the population in general.

The large proportion of the blind in manufacturing and mechanical industries as compared with other pursuits is due both to the relatively lesser difficulties to be encountered therein, and to the inclusion under that general head of certain processes, often of simple handicraft character, to which the blind have been able in limited measure to turn their hands. The large proportion in trade is somewhat similarly explained—the obstacles of a practical nature being less pronounced and available openings more likely to manifest themselves here than in other fields. The high proportion of the blind in professional service is accounted for in no small part by the considerable number of blind musicians and teachers of music, representing callings to which the blind have been much inclined; in addition, there is a considerable number of persons in the various professional callings who have found it possible to continue their activities in some degree after the onset of their blindness. In the remaining occupation groups the ratio between the proportion of the blind gainfully employed and that of the general population ranges from somewhat over one-half to one-fifth.

These comparisons with the general population constitute a rough measure of the extent to which blindness acts as a barrier or limitation to participation, or even partial participation, in the several industrial pursuits of men. In some fields the lack of eyesight sets up an effectual bar and in others a very severe handicap.

As between the sexes, the proportion of male blind is relatively greater in agriculture, extraction of minerals, transportation, and trade; and of female blind, in the remaining occupations save public service, in which the proportions are equal. These are the same occupations, respectively, in which either sex predominates in the general population, except manufacturing and mechanical occupations and public service, in which males have the larger proportions. The ratios between the proportions for males and for females in the two population groups, however, present some decided differences.

Since 1910 there have been increases in the proportions for the blind in manufacturing and mechanical occupations, transportation, public service, and probably clerical occupations. In the remaining occupational groups, agriculture, forestry, and animal husbandry, extraction of minerals, trade, professional service, domestic and personal service, and unclassifiable occupations, there have been decreases.

Occupational groups, by race and nativity.—In Table 61 are given the number and the percentage distribution of the blind of both sexes combined by general occupation groups, for the several race and nativity classes.

TABLE 61.—BLIND POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY RACE, NATIVITY, AND OCCUPATIONAL GROUPS, AS COMPARED WITH THE GENERAL POPULATION, FOR THE UNITED STATES: 1920

[Figures for blind include only those returning special schedules]

OCCUPATIONAL GROUP	POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED [1]					
	All classes [2]	White			Negro	Indian
		Total	Native	Foreign-born		
	BLIND POPULATION—NUMBER					
Total	7,177	6,464	5,535	929	678	28
Agriculture, forestry, and animal husbandry	948	870	759	111	62	14
Extraction of minerals	12	10	9	1	2	----
Manufacturing and mechanical industries	3,090	2,817	2,369	448	264	8
Transportation	110	105	99	6	5	----
Trade	1,264	1,165	978	187	96	1
Public service	34	33	29	4	1	----
Professional service	1,005	878	779	99	123	4
Domestic and personal service	393	288	242	46	103	1
Clerical occupations	281	264	243	21	16	----
Unclassifiable	40	34	28	6	6	----
	BLIND POPULATION—PER CENT DISTRIBUTION [3]					
Total	100.0	100.0	100.0	100.0	100.0	----
Agriculture, forestry, and animal husbandry	13.3	13.5	13.8	12.0	9.2	----
Extraction of minerals	0.2	0.2	0.2	0.1	0.3	----
Manufacturing and mechanical industries	43.3	43.8	43.0	48.5	39.3	----
Transportation	1.5	1.6	1.8	0.7	0.7	----
Trade	17.7	18.1	17.8	20.3	14.3	----
Public service	0.5	0.5	0.5	0.4	0.1	----
Professional service	14.1	13.7	14.1	10.7	18.3	----
Domestic and personal service	5.5	4.5	4.4	5.0	15.3	----
Clerical occupations	3.9	4.1	4.4	2.3	2.4	----
	GENERAL POPULATION—PER CENT DISTRIBUTION					
Total	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture, forestry, and animal husbandry	26.3	23.8	26.9	12.0	45.2	68.8
Extraction of minerals	2.6	2.8	2.2	4.9	1.5	0.9
Manufacturing and mechanical industries	30.8	32.5	28.7	46.9	18.4	15.5
Transportation	7.4	7.5	7.6	7.1	6.5	3.8
Trade	10.2	11.2	11.2	11.1	2.9	1.8
Public service	1.9	2.0	2.0	1.6	1.0	1.3
Professional service	5.2	5.6	6.3	3.0	1.7	1.6
Domestic and personal service	8.2	6.3	5.3	9.9	22.1	5.7
Clerical occupations	7.5	8.4	9.8	3.4	0.8	0.7

[1] Includes those whose age was not reported.
[2] Includes "other colored," chiefly Chinese and Japanese.
[3] Exclusive of unclassifiable occupations. Per cent not shown where base is less than 100.

There are larger proportions for whites than for Negroes in all of the major occupation groups except extraction of minerals, professional service, and domestic and personal service. When comparison is made between the respective proportions in each occupation for the blind and for the population at large some notable differences appear. Only in the case of domestic and personal service do

the proportions for whites and for Negroes among the blind and in the general population correspond, the handicap of blindness being fairly equal for the two races. The representation of Negroes in agriculture among the blind is only about two-thirds that of the whites, though in the general population the proportion for Negroes is relatively almost double that of the whites. In transportation and in public service the differences in the proportions resulting from the absence of vision are more than twice as great with Negroes as with whites. On the other hand, in manufacturing and mechanical industries, while among whites the proportion is not very much greater for the blind than for the general population, among Negroes it is more than double. In trade the proportion for the blind is only slightly larger with whites, but with Negroes five times as large. In professional service the proportion for the blind is for whites not quite three times, but for Negroes over ten times, that of the general population. In clerical occupations the proportion among whites is less than one-half because of blindness, but among Negroes the proportion is, notwithstanding, three times that of the general population. In extraction of minerals the reduction in the proportion consequent upon the loss of sight is several times as great among whites as among Negroes.

The variations in the respective proportions for the two races between the blind population and the population as a whole are, in the main, ascribable to three factors, as follows: Differences between whites and Negroes in the general status as to education; the varying amount of vocational provision for the two races, including industrial guidance by the special agencies for the blind; and the relative industrial opportunities afforded the two races. In agriculture the situation that exists is largely due to the considerable number of white blind who on the occurrence of their affliction ostensibly continue in their accustomed occupation. The high proportion of white blind in transportation is chiefly attributable to their exclusive entry into one form of the occupations so classed, namely, telephone operating. In manufacturing and mechanical industries and trade the situation as regards Negroes is in some degree explained by the special openings provided in these fields, often along lines regarded as particularly suited for the blind and for which vocational training is afforded in the schools and workshops, though it should be stated that blind Negroes here are for the most part in employments of an unskilled and casual nature, and, as classified under trade, in occupations not infrequently of a semimendicant kind. The last observation applies also to a portion of the Negroes engaged in domestic and personal service and in clerical occupations. The abnormal proportion of blind Negroes in professional service is in no small part accounted for by the large number reported as clergymen.

As between native and foreign-born blind, larger proportions are found for the former group in all classes of occupations except manufacturing and mechanical industries, trade, and domestic and personal service. The differences in the proportions for native and foreign born in the several occupations, however, are not marked, save in the case of transportation and in clerical occupations, the proportion for natives in the former occupation being almost three times as great as for the foreign born and in the latter twice as great. The differences between the two groups among the blind on the whole reflect to but limited extent the differences between the two groups in the population at large. Only in public service is a ratio corresponding to that between the native white and foreign-born white in the general population maintained among the blind. In clerical occupations the proportion with the blind population is only about twice as great for natives as for the foreign born, and in agriculture, public service, and in trade the proportions are nearly alike. In transportation the proportion for the native whites is nearly three times that for the foreign-born whites. In extraction of minerals the proportion in the blind population for the native born is double

that for the foreign born. In manufacturing and mechanical occupations the proportion for the foreign born is only slightly greater than for the native.

The factors responsible for the differences in the employment in various classes of occupations for natives and for the foreign born among the blind as compared with the proportions among the population as a whole are in large part the same as those responsible for the differences as to whites and Negroes, that is, education and opportunity. Native blind persons may be expected to have the better representation in those callings for which special training is given in the schools for the blind; this training is possible in much less degree for the foreign born because of the later occurrence of their affliction, generally after the period of schooling. This is an especially important factor in producing the relatively larger proportion of natives in manufacturing and mechanical industries and in transportation, piano tuning particularly as an occupation of the former type, and telephone operating as an occupation of the latter type, being engaged in mainly by natives; both occupations are very generally taught in the special schools.

Principal occupations.—In Table 62 are given the number of the blind 10 years of age and over gainfully employed in occupations in which not less than 0.5 per cent of either sex are engaged, together with the respective percentages for both 1920 and 1910, and the percentage for the general population. A more complete list of the occupations reported, classified according to the principal occupational groups previously shown, is given in Table 105, p. 177.

TABLE 62.—BLIND POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY SEX AND OCCUPATION, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

OCCUPATION	Number, 1920	PER CENT DISTRIBUTION		Per cent distribution of general population of same sex, 1920
		1920	1910	
Males	5,907	100.0	100.0	100.0
Broom makers	825	14.0	11.2	(1)
Farmers, etc.[2]	660	11.2	18.3	18.7
Piano tuners	447	7.6	6.1	(1)
Retail dealers (other than grocers and cigar and tobacco dealers)	434	7.3	6.0	2.9
Musicians and teachers of music	387	6.6	8.9	0.2
Chair caners[3]	381	6.4	4.7	(3)
Hucksters and peddlers	311	5.3	6.5	0.1
Laborers, building, general, and not specified	198	3.4	2.2	1.8
Agents and canvassers	165	2.8	3.7	0.4
Agricultural laborers	136	2.3	2.3	10.2
Newspaper carriers and news dealers	127	2.1	2.3	0.1
Clerks in stores and salesmen	113	1.9	0.9	3.2
Basket workers	103	1.7	0.9	(4)
Clergymen	90	1.5	2.7	0.4
Real estate and insurance agents, etc	73	1.2	1.1	[5] 0.8
School teachers, college presidents, and professors	71	1.2	0.9	0.4
Retail grocers	64	1.1	1.6	0.7
Carpet and rug makers	60	1.0	0.6	(4)
Weavers	51	0.9	0.3	(4)
Wood sawyers and woodchoppers	51	0.9	3.5	(4)
Manufacturers, etc.[6]	46	0.8	0.6	1.5
Cigar and tobacco dealers	41	0.7	1.2	0.1
Waiters and servants	41	0.7	0.4	1.1
Telephone operatives	37	0.6	0.5	(1)
Lawyers, judges, and justices	35	0.6	0.5	0.4
Laundry operatives (not in laundry)	32	0.5	0.5	0.2
Authors, editors, reporters, and librarians	31	0.5	0.3	0.1
All other and unclassifiable	897	15.2	11.4	56.6

See footnotes at end of table.

TABLE 62.—BLIND POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY SEX AND OCCUPATION, FOR THE UNITED STATES: 1920—Con.

[Figures include only blind persons returning special schedules]

OCCUPATION	Number, 1920	PER CENT DISTRIBUTION		Per cent distribution of general population of same sex
		1920	1910	
Females	1,270	100.0	100.0	100.0
Seamstresses and fancy workers (not in factory)	259	20.4	13.8	2.8
Musicians and teachers of music	119	9.4	15.6	0.9
Chair caners	95	7.5	4.7	[3]
School teachers, college presidents, and professors	82	6.5	3.8	7.5
Waitresses and servants	61	4.8	3.5	13.2
Basket workers	58	4.6	1.6	[4]
Farmers, etc.[2]	54	4.3	6.2	3.2
Laundry operatives and laundresses (not in laundry)	45	3.5	5.0	5.5
Weavers	43	3.4	1.8	[4]
Stenographers and typists	42	3.3	----------	6.6
Carpet and rug makers	36	2.8	1.0	[4]
Agents and canvassers	23	1.8	3.8	0.2
Boarding and lodging house keepers	20	1.6	1.9	1.3
Agricultural laborers	18	1.4	1.0	9.4
Telephone operatives	18	1.4	1.3	2.1
Retail dealers	14	1.1	1.5	0.9
Authors, editors, reporters, and librarians	13	1.0	1.2	0.3
Semiskilled operatives, printing and publishing	12	0.9	0.4	0.5
Broom makers	12	0.9	1.2	[1]
Hucksters and peddlers	9	0.7	1.5	[1]
Clerks (except in stores)	8	0.6	[4]	5.5
Practical nurses and midwives	6	0.5	[4]	1.6
Laborers, building, general, and not specified	6	0.5	[1]	0.2
All other and unclassifiable	217	17.1	28.3	38.4

[1] Less than one-tenth of 1 per cent.
[2] Includes stock raisers, gardeners, florists, fruit growers, etc.
[3] While chair caners are not shown separately for the general population, the semiskilled operatives in furniture factories, which include chair caners, form but 0.1 per cent of the total wage earners.
[4] Not separately shown.
[5] Includes real estate and insurance officials.
[6] Includes manufacturers, officials, managers, and contractors.

From Table 62 it may be seen that the blind are engaged in a variety of occupations, in some being fairly well represented. On closer analysis, however, the field of employment is found to be a very restricted one. Furthermore, the blind are not as fully engaged in all the occupations listed as might at first appear. A not inconsiderable proportion in some of the occupations are really borderline cases, among whom there is perhaps a remnant of sight left which has proved of decided help. In addition, in some instances blind persons have doubtless been returned as engaged in an occupation which was in fact the one pursued before the loss of sight, and in which an attempt has been made to continue, with more or less outside assistance, especially from one's family.

The blind are found to group rather heavily in certain particular callings. Of all the male blind listed, nearly three-fifths (58.4 per cent) are found in 7 occupations, each having more than 5 per cent of all gainfully employed. These are broom making, farming, retail dealing, piano tuning, playing and teaching of music, chair caning, and huckstering and peddling. In 14 occupations, each having 1.5 per cent or more, are three-fourths (74.1 per cent) of the male blind. These include, in addition to the first 7, the occupation of general laborers, agents and canvassers, agricultural laborers, newspaper carriers and news dealers, clerks and salesmen in stores, basket workers, and clergymen. In 27 occupations, none having less than 0.5 per cent, are found all but 15.2 per cent of the male blind.

The occupation which draws a larger number of blind males than any other is broom making, a trade generally considered especially suitable for the blind, and often given to them as their first industrial effort. In it are over one-eighth (14 per cent) of the male blind who are gainfully employed. Broom makers, as well as persons engaged in some other trades regarded as particularly adapted for the blind, often carry on their industry in special shops created for the purpose of aiding the blind.

The occupation having the next largest numerical representation is farming, with 11.2 per cent. The reasons for the relatively large proportion of the blind reported as engaged in farming are twofold. In the first place, farmers represent the largest occupational class in the population as a whole. In the second place, it is quite possible that many are enumerated as farmers, when in fact farming was the occupation engaged in prior to the oncoming of blindness, active participation in it thereafter being limited, extending little beyond general oversight and direction. This inclusion, according to the instructions, is entirely proper, and possibly the proportion of farmers would be greater still but for the belief of some that the inquiry had reference only to their ability to do actual physical work on the farm.

Retail dealers—including grocers (1.1 per cent) and cigar and tobacco dealers (0.7 per cent)—comprise 9.1 per cent of the male blind gainfully occupied. Doubtless many have continued in this occupation, also, after the loss of vision, the enterprises being small, with little outlay of capital, and valuable assistance in their conduct being rendered by members of the family.[32] If newspaper carriers and news dealers are added, the total proportion of retail dealers is 11.2 per cent—in which case the group ranks alongside farmers. If other forms of trade, such as real estate and insurance, are included, or if huckstering and peddling, a much less desirable form of trade, is embraced, the proportion for this kind of employment is considerably increased.

In piano tuning, long recognized as an occupation peculiarly adapted for the blind, 7.6 per cent are found. The playing and teaching of music, a kindred occupation, and regarded as no less desirable for the blind, follows with 6.6 per cent. Among the musicians reported, however, are included both high-grade performers and street musicians. Piano tuners and musicians together comprise over one-eighth (14.2 per cent) of all male blind persons gainfully occupied, thus ranking ahead of all other single occupations. If dealers in music and musical instruments are added, the proportion of blind males having music as a vocation becomes 14.5 per cent.

Chair caning, looked upon as a manual trade next in importance, possibly, to broom making, engages 6.4 per cent of the male blind. To huckstering and peddling, frequently only the purveying of certain small articles, as pencils, matches, shoestrings, etc., on the street or from house to house, and sometimes little more than actual begging, 5.3 per cent are credited. General laborers (3.4 per cent) and agricultural laborers (2.3 per cent) are both relatively numerous among the blind for the same reasons as are farmers. Among the former are some doing various odd jobs; among the latter are some who are at times engaged for such tasks as the husking of corn. Agents and canvassers (2.8 per cent) include some persons who are employed thus only irregularly. Newspaper carriers and news dealers (2.1 per cent) are really engaged in one form of retail dealing. In a not dissimilar occupation are clerks in stores and salesmen (1.9 per cent). Basket workers (1.7 per cent) are engaged in another of the special occupations of the blind. Clergymen (1.5 per cent) are in a calling that has always been open to blind persons, though a considerable proportion of blind

[32] Retail dealers, apart from grocers and cigar and tobacco dealers, are thus classified: Dealers in music and musical instruments (0.3 per cent), general store dealers (0.3 per cent), and all other retail dealers (6.8 per cent).

clergymen are apt to be without settled pastorates, acting rather as supplies from time to time.

The remaining occupations listed are those of real estate and insurance agents (1.2 per cent), school-teachers and others in the teaching profession (1.2 per cent), carpet and rug makers (1 per cent), weavers (0.9 per cent), wood sawyers and woodchoppers (0.9 per cent), manufacturers and others in managerial positions (0.8 per cent), waiters and servants (0.7 per cent), telephone operatives (0.6 per cent), lawyers and judges (0.6 per cent), laundry operatives (0.5 per cent), and authors, editors, reporters, and librarians, or general literary workers (0.5 per cent).[33]

By studying the occupations in which there is a heavy excess in the proportions for the blind over those for the general population, those occupations may be ascertained which have a special importance for the blind, and for which they may be said to have a special bent. These occupations are discovered to be broom making, piano tuning, performing and teaching of music, chair caning, carpet and rug making, and weaving. In nearly all these occupations the proportions for the general population are insignificant, being less than 0.1 per cent except in the case of musicians and music teachers, and weavers. The occupations specified have been regarded as particularly appropriate for the blind, and more or less specialized instruction in them has been afforded at the special schools and workshops for this class.

There are likewise certain occupations rather in the general field of employment which are apparently adapted to some extent for the blind, and to which they have resorted in proportions notably in excess of the proportions for the population at large. These are mainly small business ventures such as those of retail dealers, hucksters and peddlers, agents and canvassers, newspaper carriers and dealers, and real estate and insurance agents; such pursuits as that of telephone operatives; professional callings such as those of clergymen, school-teachers, lawyers, and literary workers; and general unskilled work such as that of general laborers, wood sawyers and woodchoppers, and laundry operatives. Some of the occupations of this type have in fact appeared so promising as pursuits for the blind that some degree of special attention is being given to them in the vocational training of the sightless. This is particularly true of certain commercial and clerical callings, including the conducting of small-scale mercantile or other business undertakings, salesmanship, stenography, and telephone operating, and limited agricultural enterprises like poultry raising.

Some of the occupations of the blind of a general nature, especially those involving selling processes, like retail dealing, are to some extent carried on as a continuation of callings engaged in prior to the loss of sight, and with more or less assistance of family or others. This is also the case, but in less degree, with some occupations of a professional nature. Certain pursuits, as those of agents and canvassers and of clergymen, and of general and agricultural laborers, wood sawyers and woodchoppers, are followed in more or less desultory fashion, those so engaged often having but intermittent or casual employment.[34]

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[33] Occupations in which from 0.4 per cent to 0.2 per cent of the male blind are engaged are those of boarding and lodging house keepers, physicians and others in the medical profession, public entertainers, tobacco workers, hammock and net makers, clerks not in stores, semiskilled operatives in printing and publishing, janitors and sextons, bankers and persons in kindred occupations, stenographers and typists, commercial travelers, and drivers and teamsters. (See Table 105, p. 177.)

[34] Practically all the male blind in manufacturing and mechanical industries, except those listed as general laborers, are technically designated semiskilled operatives, though as a matter of fact the occupations in which they are engaged are of a relatively simple nature, demanding but little real skill. Of the male blind in transportation, 40.2 per cent are telephone operatives. Of those in trade, 43.8 per cent are retail dealers, 25.3 hucksters and peddlers, and 10.3 per cent newspaper carriers and news dealers. Of those in clerical occupations, 79.7 per cent are agents and canvassers. Of those in professional service, 51.5 per cent are musicians and teachers of music, and 12 per cent are clergymen. (See Table 105, p. 177, for numbers on which these precentages are based.)

Compared with 1910, there have been moderate increases in the proportions of the male blind gainfully employed as broom makers, retail dealers, chair caners, general laborers, real estate and insurance agents, school teachers, manufacturers, waiters and servants, telephone operatives, lawyers, and literary workers, and also among clerks and salesmen, basket workers, carpet and rug makers, and weavers. Piano tuning shows a certain increase, but musicians and music teaching a decrease. The most notable decrease is in the case of wood sawyers and woodchoppers. On the whole, but with a few exceptions, the gains seem to be rather along the lines to which increasing attention is being given in the special schools in the way of training and preparation of the blind.

In Table 62 are presented also the figures for blind females, covering occupations in which at least 0.5 per cent of all blind females gainfully employed are engaged.

The range of occupations open to blind females is much narrower than with blind males. The same considerations which put limitations upon the extent to which blind males are actually engaged in gainful occupation are applicable to blind females as well, perhaps with somewhat greater force. It is possible that blind females report more often than blind males the occupation engaged in before the occurrence of blindness.

The one occupation which easily leads all others is that of seamstresses and fancy workers (not in factories), or plain and fancy sewing, this occupation alone having one-fifth (20.4 per cent) of the total gainfully employed. Most of these persons are more or less irregularly occupied in their own homes. In 7 occupations are embraced almost three-fifths (57.5 per cent) of the female blind—those of seamstresses and fancy workers, musicians and teachers of music (9.4 per cent), chair caners (7.5 per cent), school-teachers (6.5 per cent), waitresses and servants (4.8 per cent), basket workers (4.6 per cent), and farmers, including stock raisers, gardeners, florists, fruit growers, etc. (4.3 per cent). In 11 occupations there are nearly three-fourths (70.5 per cent), the 4 after the first 7 being those of laundry operatives (3.5 per cent), weavers (3.4 per cent), stenographers and typists (3.3 per cent), and carpet and rug makers (2.8 per cent). In the 23 occupations, each having at least 0.5 per cent, there are all but 17.1 per cent, including, besides those already named, agents and canvassers (1.8 per cent), boarding and lodging house keepers (1.6 per cent), agricultural laborers (1.4 per cent), telephone operatives (1.4 per cent), retail dealers (1.1 per cent), literary workers (1 per cent), broom makers (0.9 per cent), semiskilled operatives in printing and publishing (0.9 per cent), hucksters and peddlers (0.7 per cent), clerks not in stores (0.6 per cent), practical nurses and midwives, and general laborers (0.5 per cent).

Female blind persons are found to be fairly well represented in the occupations which have been regarded as especially suited for the blind, and for which special vocational training is provided—plain and fancy sewing, playing and teaching of music, chair caning, basket working, weaving, carpet and rug making, and broom making. Some of these represent handicraft processes engaged in at home, and taught possibly through special home instruction. Other occupations of a more general character, in which the proportion for the blind is larger than for the population at large are farming (probably in most cases as owners or assistants), the work of agents or canvassers, boarding-house keeping, retail dealing, literary work, semiskilled labor in printing and publishing, huckstering and peddling, and general labor. With respect to the work of blind females in general, it is to be remembered that an appreciable proportion not returned as gainfully employed are in fact persons living in their own homes and engaged to a greater or less extent in the performance of household tasks.[35]

[35] Of blind females in manufacturing and mechanical industries, 41.8 per cent are seamstresses and fancy workers. Of those in transportation, all are telephone operatives. Of those in clerical occupations, 56.8 per cent are stenographers and typists. Of those in professional service, 32.3 per cent are school teachers. (See Table 105, p. 177, for numbers on which these percentages are based.)

The most notable increases since 1910 have been in plain and fancy sewing, chair caning, school teaching, basket working, weaving, stenography and typing, carpet and rug making, semiskilled labor in printing and publishing, and general labor. Less notable increases have occurred in the work of waitresses and servants, agricultural laborers, and telephone operatives. The most significant increase of all is in the case of stenography and typing, an occupation to which special attention has been given of late years, though a part of this increase may be attributed to the increasing entry of women generally into such work. The development and extension of home teaching are largely responsible for the increases in some of the special occupations of the blind women, including instruction in certain handicrafts, especially sewing, some of which may be turned to material account, even though proceeds from sales may be small. The considerable decrease in the proportions for musicians and teachers of music is not easily explained except as it reflects the increasing entry of women into other occupations.

Age when vision was lost.—The age when the loss of sight occurred is discovered to have a very important bearing upon the extent to which the blind may be engaged in gainful occupations. Table 63 shows the total number of blind males and females 10 years of age and over, and the number gainfully occupied in 1920, with the percentage which the number occupied comprises of the total, in 1920 and 1910, according to the age when vision was lost.

TABLE 63.—BLIND POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY SEX AND AGE WHEN VISION WAS LOST, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

AGE WHEN VISION WAS LOST	TOTAL NUMBER, 1920 [1]		GAINFULLY OCCUPIED [1]					
			Number, 1920		Per cent of total			
					1920		1910	
	Male	Female	Male	Female	Male	Female	Male	Female
Total	23,251	16,385	5,907	1,270	25.4	7.8	24.5	5.8
Less than 20 years	7,325	6,014	2,617	802	35.7	13.3	39.7	13.0
Less than 5 years [2]	3,880	3,560	1,144	489	29.5	13.7	34.8	13.8
5 to 9 years	1,318	1,076	540	156	41.0	14.5	42.5	14.0
10 to 14 years	1,129	720	460	80	40.7	11.1	46.3	10.4
15 to 19 years	884	526	457	71	51.7	13.5	45.5	10.9
Age not definitely reported [3]	114	132	16	6	14.0	4.5	(4)	(4)
20 years or over	15,323	9,871	3,187	432	20.8	4.4	19.1	2.6
20 to 24 years	1,099	444	478	57	43.5	12.8	43.1	8.3
25 to 44 years [2]	4,817	2,160	1,764	171	36.6	7.9	32.8	5.4
45 to 64 years [2]	5,252	3,569	811	148	15.4	4.1	13.4	2.2
65 years or over [2]	4,155	3,698	134	56	3.2	1.5	4.3	0.8
Age not reported	603	500	103	36	17.1	7.2	12.2	2.7

[1] Includes those whose age at enumeration was not reported.
[2] Included under the appropriate age groups are those reporting the period of life, but not the exact age, at which vision was lost, infancy, early adult life, middle life, and old age.
[3] Reported as losing vision in childhood or youth.
[4] Per cent not shown where base is less than 100.

For each sex the proportion occupied is considerably larger for those who lost sight under 20 than for those who lost it after that time. For males the respective percentages are 35.7 and 20.8, and for females 13.3 and 4.4. The lower proportions for the group whose blindness came later in life may to a large extent be ascribed to the circumstance that in this group are included many persons who are already well along in life, and some who have in any event become too old for industrial activities, and others whose blindness has so recently befallen them that they have not been able to make necessary economic readjustments.

Among the females losing sight in adult life, furthermore, are a number who are married, who would be less likely to be gainfully occupied. Persons, on the other hand, who lose sight in childhood and youth are in a much better position to accommodate their lives, which are so largely in the future, to the new situation. In addition, such persons have the advantage of vocational training which the special schools for the blind seek to promote to the fullest extent, and which in subsequent years often stands them in good stead. Further vocational assistance is extended by the special workshops existing in some centers, which mainly affect persons who have passed beyond the days of schooling. At the same time, however, it is readily understood that a person becoming blind after some experience in the world of industry will have certain advantages over one who has always been blind, such as an acquired sense of self-reliance, industrial habits, and knowledge of general business methods and practices. It is due to this last factor possibly that the proportions for males gainfully employed are highest for persons losing sight at the threshold of adult life, from 15 to 19 and 20 to 24 years; though no less consideration should be given to the additional fact that persons at these periods of life generally have the fullest initiative and energy, either for continuance at an occupation previously engaged in or for adaptation to a new one.

Since 1910 there has been, for reasons not entirely clear, a certain decrease in the proportion of males gainfully employed who lost sight under 15, and an increase for those who lost sight thereafter, except in old age. With females there has been an increase for practically all groups, the more pronounced for those losing their sight in the later years of life. This increase among persons who became blind in adult life, especially as regards females, is doubtless one of the results of the extension of home teaching, which is carried on particularly among the older blind, and which has provided a modicum of gainful employment even for them.

In Table 64 is shown for each sex the per cent distribution, by occupation, of the blind 10 years of age and over gainfully employed, classified also according to the age when vision was lost.

Nearly all the occupations which have been considered as particularly suited for the blind, and which are generally included in the industrial training provided at the special schools, show larger proportions for those who lost sight under 20, the exceptions being basket working, carpet and rug making, and weaving; all of these trades are largely provided in the special workshops or in the home teaching for adults. In the case of the occupations concerned with music—that is, piano tuning and the performing and teaching of music—the proportion is several times greater than for those losing vision later in life, a circumstance which indicates the practical value of the musical instruction afforded in the schools for the blind. More general occupations, which show a larger proportion for persons losing sight in childhood and youth, are those of agricultural laborers, clergymen, school-teachers, clerks and salesmen, and telephone operatives. The occupations represented by the two last-named groups, as previously brought out, are now receiving increased attention from schools for the blind. Most of the general occupations, however, have greater proportions for those persons losing sight in adult life, or after 20. In many instances this is because there is a continuance of the previous occupation though handicapped in varying degrees by blindness. Notable illustration of these attemps to carry on are found in the case of farmers and of persons engaged in some form of selling business, not a few persons in these classes endeavoring to remain at their former callings at whatever age the loss of vision falls. This is also true to a considerable extent of persons engaged in professional service and other persons whose occupations do not demand great physical activity or exertion.

TABLE 64.—BLIND POPULATION 10 YEARS OF AGE AND OVER, BY SEX AND AGE WHEN VISION WAS LOST—PER CENT DISTRIBUTION, BY OCCUPATION, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules. Base numbers in Table 106, p. 180]

SEX AND OCCUPATION	Total [1]	LOSING VISION AT AGE OF—						
		Less than 20 years			20 years or over			
		Total	Less than 5 years	5 to 19 years	Total	20 to 44 years	45 to 64 years	65 yrs. or over
Males	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Broom makers	14.0	14.3	13.2	15.0	13.8	15.7	10.2	3.7
Farmers, etc.[2]	11.2	5.8	3.3	7.8	15.5	11.4	21.5	47.8
Piano tuners	7.6	15.1	17.1	13.4	1.3	1.8	0.1	0.7
Retail dealers (other than grocers and cigar and tobacco dealers)	7.3	5.4	4.5	6.1	8.9	9.9	7.2	3.7
Musicians and teachers of music	6.6	12.0	16.8	8.4	2.1	2.4	1.6	0.7
Chair caners	6.4	7.3	6.1	8.2	5.8	5.6	6.7	4.5
Hucksters and peddlers	5.3	2.9	3.2	2.6	7.3	7.4	7.6	3.0
Laborers, building, general, and not specified	3.4	2.6	2.5	2.6	4.0	4.4	3.0	3.7
Agents and canvassers	2.5	2.3	2.5	2.1	3.3	3.6	2.8	1.5
Agricultural laborers	2.5	2.4	2.2	2.5	2.2	2.1	2.6	1.5
Newspaper carriers and news dealers	2.4	2.1	2.3	2.1	2.2	2.3	2.2	0.7
Clerks in stores and salesmen	1.9	2.1	2.4	1.9	1.7	2.0	1.0	1.5
Basket workers	1.7	0.8	0.8	0.8	2.5	2.4	3.0	2.2
Clergymen	1.5	1.6	1.5	1.6	1.4	1.2	1.6	3.0
Real estate and insurance agents, etc	1.2	0.9	0.6	1.1	1.5	1.4	1.8	2.2
School-teachers, college presidents, and professors	1.2	2.1	1.4	2.7	0.5	0.4	0.6	-----
Retail grocers	1.1	1.0	0.9	1.2	1.2	1.4	0.6	0.7
Carpet and rug makers	1.0	0.6	0.6	0.6	1.3	1.5	0.9	0.7
Weavers	0.9	0.8	0.8	0.8	0.9	1.0	0.9	-----
Wood sawyers and woodchoppers	0.9	0.8	0.5	1.0	0.9	1.1	0.6	-----
Manufacturers, etc.[3]	0.8	0.5	0.3	0.6	1.0	0.9	1.2	1.5
Cigar and tobacco dealers	0.7	0.3	0.4	0.2	1.0	1.1	0.7	0.7
Waiters and servants	0.7	0.6	0.7	0.5	0.7	0.8	0.6	0.7
Telephone operatives	0.6	0.7	0.7	0.7	0.6	0.7	0.4	-----
Lawyers, judges, and justices	0.6	0.6	0.6	0.6	0.6	0.4	1.1	1.5
Laundry operatives (not in laundry)	0.5	0.2	0.2	0.3	0.8	0.8	1.0	0.7
Authors, editors, reporters, and librarians	0.5	0.5	0.6	0.5	0.5	0.5	0.7	-----
All other and unclassifiable	15.2	13.6	13.0	14.1	16.3	15.9	17.8	12.7
Females	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(4)
Seamstresses and fancy workers (not in factory)	20.4	15.7	15.1	16.0	30.1	25.4	34.5	-----
Musicians and teachers of music	9.4	13.5	16.2	9.4	2.1	3.9	-----	-----
Chair caners	7.5	9.1	9.6	8.5	4.4	7.0	2.0	-----
School-teachers, college presidents, and professors	6.5	8.7	7.8	10.4	1.6	2.2	1.4	-----
Waitresses and servants	4.8	4.2	4.1	4.6	5.1	6.1	4.1	-----
Basket workers	4.6	4.9	5.3	4.2	4.2	2.6	8.1	-----
Farmers, etc.[2]	4.3	1.2	1.0	1.6	10.0	4.4	12.8	-----
Laundry operatives and laundresses (not in laundry)	3.5	2.2	1.4	3.6	6.0	7.9	4.1	-----
Weavers	3.4	4.7	3.9	6.2	0.9	1.3	0.7	-----
Stenographers and typists	3.3	5.2	7.4	2.0	-----	-----	-----	-----
Carpet and rug makers	2.8	2.5	2.9	2.0	3.0	3.1	4.1	-----
Agents and canvassers	1.8	1.9	1.6	2.3	1.6	2.2	1.4	-----
Boarding and lodging house keepers	1.6	0.9	0.2	2.0	3.0	2.2	3.4	-----
Agricultural laborers	1.4	1.4	1.2	1.6	1.6	2.2	1.4	-----
Retail dealers	1.1	1.2	1.0	1.6	0.7	0.9	0.7	-----
Authors, editors, reporters, and librarians	1.0	1.1	0.6	2.0	0.7	0.9	0.7	-----
Semiskilled operatives, printing and publishing	0.9	1.2	1.4	1.0	0.2	0.4	-----	-----
Broom makers	0.9	0.6	0.2	1.3	1.6	2.2	1.4	-----
Hucksters and peddlers	0.7	0.6	0.6	0.7	0.7	0.4	1.4	-----
Practical nurses and midwives	0.5	0.4	0.4	0.3	0.5	0.9	-----	-----
All other and unclassifiable	19.6	18.6	18.0	18.9	22.0	23.7	18.2	-----

[1] Includes those whose age at enumeration was not reported; includes also a small number for whom the exact age when vision was lost was not reported.
[2] Includes stock raisers, gardeners, florists, fruit growers, etc.
[3] Includes manufacturers, officials, managers, and contractors
[4] Per cent not shown where base is less than 100.

Table 64 presents corresponding statistics for the female blind, where the same situation on the whole obtains. Much larger proportions in particular for persons losing sight under 20 are found in work that calls for a musical training; and also in chair caning, school-teaching, weaving, stenography and typing, and semiskilled labor in printing and publishing—stenography and typing in particular being an occupation which is increasingly offered in the vocational training of the blind. There are also larger proportions for basket workers, agents and canvassers, and literary workers. The larger proportion losing sight when past 20 which is found among seamstresses and fancy workers must be ascribed to the results of home teaching, particularly adapted to adults. The larger proportions for broom making and carpet and rug weaving among persons losing sight in adult life are doubtless attributable to the fact that these are all commonly taught in the workshops for such persons. Other occupations in which the proportions are larger, such as farmers, boarding-house keepers, etc., are those in which there is the ability to carry on in some manner even after the loss of sight.

The discussion heretofore has related to the extent to which the blind are actively and remuneratively engaged in the industrial life of the community. Another question now presents itself for consideration: How far are the blind who are reported as gainfully occupied actually self-supporting; or to what extent are the earnings received by the blind sufficient to give them a life free from dependence? In what measure, in other words, are the blind able of themselves to provide their means of livelihood?

Ability for self-support and annual earnings.—In Table 65 are shown, for males and for females, the number and the percentage distribution in 1920 and 1910 of the blind 10 years of age and over gainfully occupied, according to their ability for self-support and the amount of their annual earnings.

TABLE 65.—BLIND POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY SEX, ABILITY FOR SELF-SUPPORT, AND ANNUAL EARNINGS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

SELF-SUPPORT AND ANNUAL EARNINGS	NUMBER, 1920 [1]		PER CENT DISTRIBUTION [2]			
			1920		1910	
	Male	Female	Male	Female	Male	Female
Total	5,907	1,270	100.0	100.0	100.0	100.0
Ability for self-support:						
Self-supporting	2,650	369	46.2	30.5	43.8	22.2
Not self-supporting	3,088	842	53.8	69.5	56.2	77.8
Not reporting	169	59	----	----	----	----
Reporting annual earnings of —						
Less than $100	530	335	12.8	38.4	31.9	59.1
$100 to $199	585	130	14.1	14.9	22.0	18.8
$200 to $299	482	78	11.6	8.9	11.3	6.8
$300 to $399	475	108	11.5	12.4	9.5	5.7
$400 to $499	300	52	7.2	6.0	4.4	2.9
$500 to $599	362	44	8.7	5.0	5.2	2.9
$600 to $799	404	49	9.8	5.6	5.1	1.3
$800 to $999	284	35	6.9	4.0	2.5	0.5
$1,000 to $1,199	217	22	5.2	2.5	2.5	0.8
$1,200 to $1,499	153	10	3.7	1.1	1.4	0.8
$1,500 or over	351	9	8.5	1.0	4.2	0.5
Not reporting annual earnings:						
Self-supporting	750	106	----	----	----	----
Not self-supporting	898	267	----	----	----	----
Not reporting	116	25	----	----	----	----

[1] Includes those whose age was not reported.
[2] Based upon the population reporting on the respective subjects.

Here the actual economic condition of the blind is more fully revealed. Not only is the proportion really self-supporting found to be seriously limited among those reported as engaged in some form of remunerative employment, but the earnings of a large number of them are seen to be much below what a person should have for even a low standard of living. In not a few instances earnings are so meager that they can be regarded as little more than nominal.

Of the male blind who are gainfully employed, less than one-half (46.2 per cent) are self-supporting. Less than one-third (30.5 per cent) of the female blind who are gainfully occupied are so.[36] It is encouraging to note, however, that the proportions for both sexes are higher than are those for 1910, especially in the case of females. This improvement may quite possibly be attributed in large measure to the increased efforts on the part of various agencies for the blind to make suitable provision for training and employment, with the necessary assistance to keep blind persons at jobs.

In certain cases blind persons, especially blind females, are engaged in some kind of home work, frequently needlework, the products of which are marketed by some special agency for the blind, the proceeds, rarely of any considerable amount, less the cost of material, being given to the workers.

Probably the clearest view of the extent to which the blind are self-supporting may be gained from an examination of the actual earnings received by them. Of males, a little more than one-fourth (26.9 per cent) have earnings of under $200. Just one-half (50 per cent) receive less than $400 a year. Three-fourths (75.7 per cent) have less than $800. Only a little over one-sixth (17.4 per cent) have earnings of $1,000 or over, and one-twelfth (8.5 per cent) of $1,500 or over. For females, earnings are far less. Over one-third (38.4 per cent) do not have as much as $100 a year and three-fourths (74.6 per cent) not as much as $400. Only one-fifth (19.2 per cent) receive $500 or more a year.

As compared with 1910, however, the results appear to be much more satisfactory. The proportions for males and females alike show a decline for those receiving the lower earnings and increases for those receiving the higher earnings. Thus, the proportion of males receiving under $200 has decreased from 53.9 per cent to 26.9 per cent, or by one-half. The proportion receiving $500 or over has increased from 20.9 per cent to 42.8 per cent, or more than doubled. For blind females a decrease is shown for earnings of less than $200, but an increase above that sum, the increases becoming more and more pronounced with advancing earnings. This increase in the earnings of the blind is, of course, largely a reflection of the general advance in salaries and wages from 1910 to 1920, but some part, we may believe, is due to the enlarging efforts, already referred to, to serve the blind by better industrial provision.

Table 66 gives even more specific data on the ability of the blind for self-support. It shows the number and per cent of males and of females who are self-supporting and not self-supporting, respectively, in the principal occupations in which the blind are engaged. These are shown as a part of the main occupational group to which they belong.

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[36] The actual economic condition of the blind is possibly further revealed in figures showing their dependence upon earnings, though these figures, because of a misunderstanding of the nature of the question in a number of instances, are to be relied upon in but limited measure. The differences between these figures and figures for self-support indicate to what extent the blind have to seek aid from other sources, often in some form of charity. (See The Blind in the United States, 1920, Table 36, p. 70.)

TABLE 66.—BLIND POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY SEX, OCCUPATION, AND ABILITY FOR SELF-SUPPORT, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

SEX AND OCCUPATION	NUMBER			PER CENT OF TOTAL[1]	
	Total	Self-supporting	Not self-supporting	Not reporting as to ability for self-support	Self-supporting	Not self-supporting
MALE						
All occupations	5,907	2,650	3,088	169	46.2	53.8
Agriculture, forestry, and animal husbandry	864	451	381	32	54.2	45.8
Farmers, etc.[2]	660	380	263	17	59.1	40.9
Agricultural laborers	136	53	75	8	41.4	58.6
All other	68	18	43	7		
Extraction of minerals	12	6	6			
Manufacturing and mechanical industries	2,470	910	1,494	66	37.9	62.1
Laborers, building, general, and not specified	198	37	157	4	19.1	80.9
Broom makers	825	273	527	25	34.1	65.9
Piano tuners	447	269	167	11	61.7	38.3
Chair caners	381	58	316	7	15.5	84.5
Basket workers	103	25	77	1	24.5	75.5
Carpet and rug makers	60	21	38	1		
All other[3]	456	227	212	17	51.7	48.3
Transportation[4]	92	43	48	1		
Trade	1,230	619	574	37	51.9	48.1
Retail dealers (other than grocers)[5]	475	293	167	15	64.0	36.0
Hucksters and peddlers	311	96	209	6	31.5	68.5
Newspaper carriers and news dealers	127	43	80	4	35.0	65.0
Clerks in stores and salesmen	113	57	53	3	51.8	48.2
Real estate and insurance agents, etc.	73	45	23	5		
Retail grocers	64	41	21	2		
All other[6]	67	44	21	2		
Public service	28	19	9			
Professional service	751	429	303	19	58.6	41.4
Musicians and teachers of music	387	198	181	8	52.2	47.8
Clergymen	90	35	55			
School teachers, college presidents, and professors	71	58	12	1		
All other[7]	203	138	55	10	71.4	28.6
Domestic and personal service[8]	225	82	134	9	38.0	62.0
Clerical occupations	207	75	128	4	36.9	63.1
Agents and canvassers	165	44	117	4	27.3	72.7
All other[9]	42	31	11			
Other and not classifiable	28	16	11	1		
FEMALE						
All occupations	1,270	369	842	59	30.5	69.5
Agriculture, forestry, and animal husbandry	84	42	39	3		
Farmers, etc.[2]	54	37	15	2		
Agricultural laborers	18	1	17			
All other	12	4	7	1		
Manufacturing and mechanical industries	620	82	510	28	13.9	86.1
Seamstresses and fancy workers (not in factories)	259	15	235	9	6.0	94.0
Semiskilled operatives:						
Chair caners	95	19	66	10		
Basket workers	58	8	49	1		
Weavers	43	10	33			
Carpet and rug makers	36	6	28	2		
All other[10]	129	24	99	6	19.5	80.5

See footnotes at end of table.

TABLE 66.—BLIND POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY SEX, OCCUPATION, AND ABILITY FOR SELF-SUPPORT, FOR THE UNITED STATES: 1920—Continued

[Figures include only blind persons returning special schedules]

SEX AND OCCUPATION	Total	NUMBER			PER CENT OF TOTAL[1]	
		Self-supporting	Not self-supporting	Not reporting as to ability for self-support	Self-supporting	Not self-supporting
FEMALE—continued						
Transportation:						
Telephone operatives	18	16	2			
Trade	34	14	19	1		
Retail dealers	14	8	5	1		
All other [11]	20	6	14			
Public service	6	2	3	1		
Professional service	254	115	124	15	48.1	51.9
Musicians and teachers of music	119	40	75	4	34.8	65.2
School teachers, college presidents, and professors	82	57	17	8		
Authors, editors, reporters, and librarians	13	4	8	1		
All other [12]	40	14	24	2		
Domestic and personal service	168	54	109	5	33.1	66.9
Waitresses and servants	61	17	42	2		
Laundry operatives and laundresses (not in laundry)	45	10	35			
Boarding and lodging house keepers	20	6	12	2		
All other [13]	42	21	20	1		
Clerical occupations	74	41	29	4		
Stenographers and typists	42	30	9	3		
Agents and canvassers	23	6	17			
All other	9	5	3	1		
Other and not classifiable	12	3	7	2		

[1] Based upon number reporting as to ability for self-support. Per cent not shown where base is less than 100.
[2] Includes stock raisers, gardeners, florists, fruit growers, etc.
[3] Includes weavers (51), tobacco workers (21), hammock and net makers (20), and printing and publishing workers (18).
[4] Includes telephone operatives (37) and drivers and teamsters (14).
[5] Includes dealers in cigars and tobacco (41), music and musical instruments (19), and general stores (16).
[6] Includes bankers (17) and commercial travelers (15).
[7] Includes lawyers, judges, and justices (35); authors, editors, reporters, and librarians (31); dentists, osteopaths, physicians and surgeons, trained nurses, and veterinary surgeons (25); and public entertainers (23).
[8] Includes wood sawyers and woodchoppers (51), waiters and servants (41), laundry operatives (32), boarding and lodging house keepers (26), and janitors and sextons (18).
[9] Includes clerks, not in stores (19), and stenographers and typists (16).
[10] Includes broom makers (12) and printing and publishing operatives (12).
[11] Includes hucksters and peddlers (9) and real estate and insurance agents (5).
[12] Includes 5 public entertainers.
[13] Includes 6 practical nurses and midwives.

In most of these occupations there is brought out anew the low earning capacity of the blind as a group. The table also indicates that the sightless are often better off in general callings than in some of the occupations which have been considered especially suited for them, a circumstance which doubtless may be accounted for largely by the fact that a number of unusually skilled or gifted persons have remained in the same occupations in which they were engaged before the oncoming of blindness. With males, among general classes of occupations, the most favorable percentages on the whole are found in agriculture, trade, and professional service, the best showing being, of course, in certain commercial or professional positions. Almost two-thirds (65.4 per cent) of persons in pro-

fessional service, other than musicians and teachers of music, are self-supporting, a little under two-thirds (64 per cent) of retail dealers, almost three-fifths (59.1 per cent) of farmers, and a little over one-half (51.8 per cent) of clerks and salesmen. The proportion self-supporting among agricultural laborers is 41.4 per cent; among persons in domestic and personal service, 38 per cent; newspaper carriers and news dealers, 35 per cent; hucksters and peddlers, 31.5 per cent; agents and canvassers, 27.3 per cent; and general laborers, 19.1 per cent. Among the occupations regarded as peculiarly suited for the blind, the most profitable ones are those concerned in some manner with music. The best results here are, of course, in the case of high-grade performers and the poorest in the case of mere street musicians. Piano tuners show three-fifths (61.7 per cent) of their number self-supporting, only a little less than retail dealers (64 per cent). Musicians and teachers of music are not far behind, with a proportion of over one-half self-supporting (52.2 per cent). Among broom makers, basket workers, and chair caners the proportions self-supporting are, respectively, 34.1 per cent, 24.5 per cent, and 15.5 per cent.[36a]

Females are not so well able to provide for themselves. With females the highest proportion self-supporting is found in professional service. A little over one-third (34.8 per cent) are self-supporting as musicians, while for other professional pursuits, in large part teaching, the proportion is about three-fifths (60.5 per cent). About one-third (33.1 per cent) in domestic and personal service and about one-fifth in various types of semiskilled operations are self-supporting. Only 6 per cent are self-supporting in sewing work, most of the blind females in this occupation being engaged in work in their homes and receiving but small and irregular compensation therefor.[37]

In Table 67 are given figures with respect to annual earnings in the foregoing occupations. Generally speaking, the greater proportions reported as self-supporting in a given occupation the larger is the number reporting a living wage.

With the blind an occupation may perhaps be considered relatively remunerative when at least one-fourth of the number engaged in it have annual earnings of $800 or more. Among males, earnings of $800 or over are most general in professional service, 45.4 per cent of the total number who reported earnings giving these amounts. Among musicians and teachers of music, 36.7 per cent, and among those in other professional pursuits, 54.4 per cent of the total, reported earnings of $800 or more. In manufacturing and mechanical industries generally wages are not high, but one-half of piano tuners (50.7 per cent) receive $800 or over; somewhat more than one-third (36.3 per cent) of retail dealers and almost two-fifths of clerks and salesmen (39.3 per cent) have earnings of $800 or more, though of the entire group of persons in trade only 27.9 per cent report this amount. In this class also are slightly over one-fourth of farmers. The real proportion for farmers is, however, considerably higher, as many of this group report only actual cash receipts, with no allowance for products consumed on the farm. This same qualification possibly applies to a certain extent to retail dealers, some of whom may at times have failed to take account of personal expenses met from business receipts.

[36a] Other special occupations for the blind, in which the numbers engaged, however, are less than 100, are carpet and rug makers, weavers, and hammock and net makers, with, respectively, one-third, one-fourth, and more than one-half of their numbers self-supporting. (For other occupations, see The Blind in the United States, 1920, Table 36, p. 70.)

[37] The proportion of females self-supporting in other occupations having less than 100 employed is generally somewhat smaller than of males, except in the case of telephone operatives and stenographers and typists, the proportions for females in these occupations being, respectively, nearly nine-tenths and over three-fourths.

TABLE 67.—BLIND POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY SEX AND OCCUPATION—PER CENT DISTRIBUTION BY AMOUNT OF ANNUAL EARNINGS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules. Base numbers in Table 107, p. 182]

SEX AND OCCUPATION	ANNUAL EARNINGS FROM OCCUPATION—PER CENT [1]					
	Total	Less than $100	$100 to $399	$400 to $799	$800 to $1,499	$1,500 and over
MALE						
All occupations	100.0	12.8	37.2	25.7	15.8	8.5
Agriculture, forestry, and animal husbandry	100.0	15.3	42.6	19.4	15.5	7.3
Farmers, etc. [2]	100.0	13.1	37.7	22.0	18.0	9.2
Agricultural laborers	100.0	26.1	55.0	10.0	7.1	1.4
Manufacturing and mechanical industries	100.0	13.3	40.1	28.7	12.8	5.0
Laborers, building, general, and not specified	100.0	38.5	44.6	13.5	3.4	-------
Broom makers	100.0	10.9	43.6	37.7	6.3	1.5
Piano tuners	100.0	5.6	21.3	21.6	34.4	16.3
Chair caners	100.0	19.6	57.3	21.7	1.4	-------
Basket workers	100.0	20.8	41.6	35.1	2.6	-------
Trade	100.0	10.4	35.2	26.5	16.4	11.5
Retail dealers	100.0	7.3	25.8	30.6	22.8	13.5
Hucksters and peddlers	100.0	16.9	56.0	22.7	3.6	0.9
Newspaper carriers and news dealers	100.0	13.8	51.1	22.3	12.8	-------
Clerks in stores and salesmen	100.0	5.1	17.7	38.0	22.8	16.5
Professional service	100.0	9.7	24.7	20.2	27.2	18.2
Musicians and teachers of music	100.0	13.1	29.5	20.7	25.1	11.6
All others	100.0	6.2	19.7	19.7	29.3	25.1
Domestic and personal service	100.0	22.7	40.3	20.1	13.6	3.2
Clerical occupations	100.0	11.7	43.1	22.7	13.0	4.5
Agents and canvassers	100.0	14.0	55.4	20.7	8.3	1.7
FEMALE						
All occupations	100.0	38.4	36.2	16.6	7.7	1.0
Manufacturing and mechanical industries	100.0	51.8	35.9	11.7	0.4	0.2
Seamstresses and fancy workers (not in factory)	100.0	76.9	20.5	2.1	0.5	-------
Semiskilled operatives	100.0	33.6	47.0	18.7	0.4	0.4
Professional service	100.0	12.9	35.6	29.4	20.2	1.8
Musicians and teachers of music	100.0	21.7	49.3	18.8	10.1	-------
All other	100.0	6.4	25.5	37.2	27.7	3.2
Domestic and personal service	100.0	43.6	42.6	9.9	4.0	-------

[1] Based upon the number reporting amount of annual earnings.
[2] Includes stockraisers, gardeners, florists, fruit growers, etc.

The remaining occupations reveal earnings much lower. Among persons in the more general occupations, well over one-half have earnings of under $400 a year. Among these are agricultural and general laborers, with over four-fifths receiving such sum; hucksters and peddlers, with almost three-fourths; agents and canvassers, newspaper carriers and news dealers, and persons in domestic and personal service, with just about two-thirds.

In the special occupations for the blind for the most part there are but limited earnings, exceptions being found only for those occupations concerned with music. Chair caning, as reported, is the poorest paid of the employments of the blind, over three-fourths so engaged receiving under $400 a year. Basket workers fare somewhat better, and broom makers slightly better still, though almost two-thirds of the former class and over one-half of the latter have earnings under $400. The proportion in any of these occupations receiving as much as $800 annually is extremely small. These amounts may be regarded as fairly typical of the earnings received in the so-called special occupations of the blind.

Not a few of the occupations reported by the blind, as has already been indicated, are more or less irregular pursuits or odd jobs, the earnings picked up therefrom often amounting to very small sums; at times these sums are accepted as little more than charitable offerings.[38]

With females earnings in the several occupations are usually very low, corresponding as a rule to the proportions found self-supporting in these occupations. In general professional service a little under one-fourth (22 per cent) receive $800 or more a year, the proportion among musicians and teachers of music being only about one-tenth, but in other professional pursuits the proportion is much higher. On the other hand, of persons in domestic and personal service and of semiskilled operatives, very large proportions receive less than $400 a year; of seamstresses reporting, over three-fourths have less than $100.[39]

Education.—Consideration must now be given to the effects of education upon the economic conditions of the blind. In Table 68 are shown the number of the blind 10 years of age and over of both sexes, and of each sex separately, who are gainfully occupied, together with the percentage which this number constitutes of the total of that age, according to their present or past attendance at school.

TABLE 68.—BLIND POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY SEX AND EDUCATION, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

EDUCATION	BLIND PERSONS 10 YEARS OF AGE AND OVER					
	Total number			Number gainfully occupied		
	Both sexes	Male	Female	Both sexes	Male	Female
All classes	39,636	23,251	16,385	7,177	5,907	1,270
Having attended school	19,778	12,112	7,666	5,365	4,383	982
Having attended special school or workshop for the blind	12,017	7,190	4,827	4,134	3,286	848
Having attended other schools also	3,850	2,485	1,365	1,573	1,288	285
Common schools only	2,361	1,523	838	851	725	126
High school or academy	426	259	167	200	152	48
University or college	328	229	99	195	157	38
Schools of miscellaneous character	356	209	147	134	100	34
Schools of character not reported	379	265	114	193	154	39
Having attended no other school	8,167	4,705	3,462	2,561	1,998	563
Reporting no other instruction	7,643	4,437	3,206	2,383	1,875	508
Reporting instruction at home	524	268	256	178	123	55
Not having attended special school or workshop for the blind	7,761	4,922	2,839	1,231	1,097	134
Having attended—						
Common school only	4,574	2,689	1,885	638	558	80
High school or academy	494	250	244	89	75	14
University or college	179	129	50	57	53	4
Schools of miscellaneous character	471	250	221	73	61	12
Schools of character not reported	2,043	1,604	439	374	350	24
Not having attended school	19,498	10,929	8,569	1,790	1,513	277
Reporting instruction at home	1,237	604	633	235	171	64
Reporting no instruction	18,261	10,325	7,936	1,555	1,342	213
Not reporting as to education	360	210	150	22	11	11

[38] Specific occupations having less than 100 persons but with at least three-fifths of those engaged therein self-supporting, are those of commercial travelers, dealers in music and musical instruments, persons in medical service, lawyers and judges, manufacturers and others in managerial positions, bankers, and persons in kindred occupations, semiskilled operatives in printing and publishing, real estate and insurance agents, school teachers, and stenographers and typists.

[39] Though of much smaller numbers, about one-half of the stenographers and typists have earnings of $800 or more.

TABLE 68.—BLIND POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY SEX AND EDUCATION, FOR THE UNITED STATES: 1920 AND 1910—Continued

[Figures include only blind persons returning special schedules]

EDUCATION	PER CENT OF TOTAL GAINFULLY OCCUPIED					
	1920			1910		
	Both sexes	Male	Female	Both sexes	Male	Female
All classes	18.1	25.4	7.8	16.8	24.5	5.8
Having attended school	27.1	36.2	12.8	28.5	39.3	12.1
Having attended special school or workshop for the blind	34.4	45.7	17.6	39.2	52.5	19.2
Having attended other schools also	40.9	51.8	20.9	47.9	60.6	21.6
Common schools only	36.0	47.6	15.0	46.7	59.7	18.8
High school or a ademy	46.9	58.7	28.7	47.4	61.0	24.4
University or college	59.5	68.6	38.4	71.5	79.6	40 7
Schools of miscellaneous character	37.6	47.8	23.1	31.7	42.3	21.2
Schools of character not reported	50.9	58.1	34.2	47.1	56.8	24.6
Having attended no other school	31.4	42.5	16.3	35.7	48.7	18.4
Reporting no other instruction	31.2	42.3	15.8	35.9	49.0	18.4
Reporting instruction at home	34.0	45.9	21.5	26.8	36.2	18.5
Not having attended special school or workshop for the blind	15.9	22.3	4.7	16.5	24.6	4.0
Having attended—						
Common school only	13.9	20.8	4.2	14.1	22.0	3.1
High school or academy	18.0	30.0	5.7	19.2	27.0	8.7
University or college	31.8	41.1	8.0	30.7	38.4	5.3
Schools of miscellaneous character	15.5	24.4	5.4	14.0	22.2	3.5
Schools of character not reported	18.3	21.8	5.5	21.2	28.5	5.1
Not having attended school	9.2	13.8	3.2	9.9	15.2	2.3
Reporting instruction at home	19.0	28.3	10.1	17.7	27.5	6.2
Reporting no instruction	8.5	13.0	2.7	9.6	14.8	2.1
Not reporting as to education	6.1	5.2	7.3	7.8	13.3	1.7

For the blind in general, a distinctly better economic showing is made for those who have attended school than for those who have not. The proportion gainfully occupied among the former is three times as great as among the latter, or 27.1 per cent as against 9.2 per cent. Among males the respective percentages are 36.2 and 13.8, and among females 12.8 and 3.2. For those who have attended school the proportion is twice as great for those who have attended a special school or workshop for the blind, whether alone or in connection with other schools, than for those who have not, or 34.4 per cent as against 15.9 per cent. In reality, the proportion would be higher for those who have attended an institution for the blind, especially persons who have attended only these, but for the fact that among them are some who became blind in early life and have as yet not reached the age of economic activity. The figures clearly demonstrate the value of the industrial training and preparation afforded by the special institutions for the blind. The schools have a difficult task in this regard and labor under many handicaps. The degree of success that they have had, limited though this success must be by the exigencies of the case, reflects very favorably upon their realization of their duties and upon their practical efforts to meet these duties. The economic benefits derived, however, are greater when there has been attendance at another school in addition to the special school or workshop. To some extent this is accounted for by the inclusion of a limited number who became blind in adult life, and after previous attendance at a general school have gone to special workshops for the blind. Successful entry into industry is doubtless also affected in certain cases by education at a technical or professional institution after attendance at a special institution. Though the greater pro-

portion in this group have attended only common schools in addition to the schools for the blind, yet the proportion is considerably affected by the inclusion of some persons of a higher type who have been able to go further and have attended high schools or colleges.

Among those who have not attended an institution for the blind are doubtless many who have had ordinary schooling, but blindness has come upon them in later years, past the time of industrial preparation and of economic activity. Some are included in this group also whose attendance has been at schools for the feeble-minded.

The figures indicate that the economic benefits derived from home instruction have been almost doubled when this was had in addition to the training in a special school or workshop for the blind, the proportions gainfully occupied being, respectively, 19 per cent and 34 per cent. Of those reporting no instruction at all, 8.5 per cent are gainfully occupied.

The results of education, particularly at a special institution for the blind, are even more marked in the case of females.

Compared with 1910, there has been, for reasons not altogether clear, in view of the general improvement in this connection already brought out, a slight decline in the proportion of the blind gainfully occupied who have attended school, whether at special institutions or at regular schools. There has been a gain, on the other hand, in the proportion who have had instruction in the home, a situation to be ascribed to the beneficial extension of home teaching. There is also a gain with respect to attendance at schools of miscellaneous character, which include the technical schools.

In Table 69 are shown the number and the percentage distribution, for each sex, according to ability for self-support and amount of earnings, in relation to the general extent of school attendance.

The proportions self-supporting, as shown here, are largely in accord with those found from the connection between gainful employment and education. For both males and females the proportions self-supporting are somewhat higher for those who have attended school than for those who have not. With males the proportions shown when attendance has been confined to special institutions for the blind are the same as when confined to other types of schools; the proportion is highest, however, when there has been attendance at both. With females, while the proportion is likewise highest for those who have had both kinds of schooling, it is somewhat higher for those who have had education exclusively at an institution for the blind than for those who have had it entirely at other schools. The showings as to earnings are much in correspondence. The proportions receiving the highest incomes are largest for those who have attended school, and the proportions receiving the lowest incomes are largest for those who have not attended school. For the most part the highest earnings of all are for those who have attended schools or workshops for the blind and also other schools. In some cases this has been at an institution for higher education, or at a technical or professional school, which has given to those of a high type of intellect an education which equips them for larger financial rewards. In general, however, persons in the more remunerative professional and business positions are more likely to have had at least a part of their schooling in the regular schools, and possibly before the advent of their blindness.[40]

[40] See The Blind in the United States, 1920, Table 37, p. 72.

TABLE 69.—BLIND POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY SEX, EDUCATION, ABILITY FOR SELF-SUPPORT, AND ANNUAL EARNINGS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

SELF-SUPPORT AND ANNUAL EARNINGS	BLIND PERSONS 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED [1]							
	Aggregate	Having attended school					Not having attended school	Not reporting as to education
		Total	Special school or workshop for the blind			Other schools only		
			Total	Other schools also	No other school			
	MALES—NUMBER							
Total	5,907	4,383	3,286	1,288	1,998	1,097	1,513	11
Ability for self-support:								
Self-supporting	2,650	2,073	1,568	646	922	505	573	4
Not self-supporting	3,088	2,192	1,634	614	1,020	558	890	6
Not reporting	169	118	84	28	56	34	50	1
Reporting annual earnings of—								
Less than $100	530	326	225	82	143	101	203	1
$100 to $199	585	416	298	106	192	118	168	1
$200 to $299	482	352	264	91	173	88	130	------
$300 to $399	475	370	289	104	185	81	105	------
$400 to $499	300	248	204	79	125	44	52	------
$500 to $599	362	291	242	78	164	49	71	------
$600 to $799	404	341	284	121	163	57	63	------
$800 to $999	284	234	192	89	103	42	49	1
$1,000 to $1,199	217	181	144	58	86	37	36	------
$1,200 to $1,499	153	129	102	49	53	27	24	------
$1,500 and over	351	301	228	118	110	73	49	1
Not reporting annual earnings:								
Self-supporting	750	518	344	132	212	174	230	2
Not self-supporting	898	595	418	160	258	177	300	3
Not reporting	116	81	52	21	31	29	33	2
	MALES—PER CENT DISTRIBUTION [2]							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	------
Ability for self-support:								
Self-supporting	46.2	48.6	49.0	51.3	47.5	47.5	39.2	------
Not self-supporting	53.8	51.4	51.0	48.7	52.5	52.5	60.8	------
Reporting annual earnings of—								
Less than $100	12.8	10.2	9.1	8.4	9.6	14.1	21.4	------
$100 to $199	14.1	13.0	12.1	10.9	12.8	16.5	17.7	------
$200 to $299	11.6	11.0	10.7	9.3	11.6	12.3	13.7	------
$300 to $399	11.5	11.6	11.7	10.7	12.4	11.3	11.1	------
$400 to $499	7.2	7.8	8.3	8.1	8.4	6.1	5.5	------
$500 to $599	8.7	9.1	9.8	8.0	11.0	6.8	7.5	------
$600 to $799	9.8	10.7	11.5	12.4	10.9	7.9	6.6	------
$800 to $999	6.9	7.3	7.8	9.1	6.9	5.9	5.2	------
$1,000 to $1,199	5.2	5.7	5.8	5.9	5.7	5.2	3.8	------
$1,200 to $1,499	3.7	4.0	4.1	5.0	3.5	3.8	2.5	------
$1,500 and over	8.5	9.4	9.2	12.1	7.3	10.2	5.2	------

See footnotes at end of table.

TABLE 69.—BLIND POPULATION 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY SEX, EDUCATION, ABILITY FOR SELF-SUPPORT, AND ANNUAL EARNINGS, FOR THE UNITED STATES: 1920—Continued

[Figures include only blind persons returning special schedules]

SELF-SUPPORT AND ANNUAL EARNINGS	BLIND PERSONS 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED [1]							
	Aggregate	Having attended school				Not having attended school	Not reporting as to education
		Total	Special school or workshop for the blind		Other schools only		
			Total	Other schools also	No other school		
	FEMALES—NUMBER							
Total	1,270	982	848	285	563	134	277	11
Ability for self-support:								
Self-supporting	369	309	273	109	164	36	58	2
Not self-supporting	842	623	530	158	372	93	210	9
Not reporting	59	50	45	18	27	5	9	------
Reporting annual earnings of—								
Less than $100	335	235	198	48	150	37	100	------
$100 to $199	130	102	89	40	49	13	28	------
$200 to $299	78	62	58	11	47	4	16	------
$300 to $399	108	96	85	36	49	11	9	3
$400 to $499	52	45	43	14	29	2	6	1
$500 to $599	44	36	32	14	18	4	6	2
$600 to $799	49	49	49	21	28	--------	--------	------
$800 to $999	35	32	30	12	18	2	3	------
$1,000 to $1,199	22	20	19	9	10	1	2	------
$1,200 to $1,499	10	10	10	8	2	--------	--------	------
$1,500 and over	9	7	7	6	1	--------	2	------
Not reporting annual earnings:								
Self supporting	106	77	58	20	38	19	29	------
Not self-supporting	267	191	152	42	110	39	71	5
Not reporting	25	20	18	4	14	2	5	------
	FEMALES—PER CENT DISTRIBUTION [2]							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	------
Ability for self-support:								
Self-supporting	30.5	33.2	34.0	40.8	30.6	27.9	21.6	------
Not self-supporting	69.5	66.8	66.0	59.2	69.4	72.1	78.4	------
Reporting annual earnings of—								
Less than $100	38.4	33.9	31.9	21.9	37.4	50.0	58.1	------
$100 to $199	14.9	14.7	14.4	18.3	12.2	17.6	16.3	------
$200 to $299	8.9	8.9	9.4	5.0	11.7	5.4	9.3	------
$300 to $399	12.4	13.8	13.7	16.4	12.2	14.9	5.2	------
$400 to $499	6.0	6.5	6.9	6.4	7.2	2.7	3.5	------
$500 to $599	5.0	5.2	5.2	6.4	4.5	5.4	3.5	------
$600 to $799	5.6	7.1	7.9	9.6	7.0	--------	--------	------
$800 to $999	4.0	4.6	4.8	5.5	4.5	2.7	1.7	------
$1,000 to $1,199	2.5	2.9	3.1	4.1	2.5	1.4	1.2	------
$1,200 to $1,499	1.1	1.4	1.6	3.7	0.5	--------	--------	------
$1,500 and over	1.0	1.0	1.1	2.7	0.2	--------	1.2	------

[1] Includes those whose age was not reported.
[2] Based upon the number reporting as to self-support and annual earnings. Per cent not shown where base is less than 100.

Public aid.—In the consideration of the economic condition of the blind, inquiry should also be directed to the sources of assistance for those among the blind who are not self-supporting. These sources are in general three in number—aid by family or friends, which is the most common method; aid from private means, of less direct and personal nature, including, in a limited degree, aid of institutional character or from endowments; and some form of public aid, for the most part of noninstitutional character. The extent of aid to the blind from the first two sources has not been fully determined. In the special schedules of the census there is included an inquiry as to the receipt of State or county aid, especially aid not involving institutional care. Answers to this inquiry sometimes include city or other local public subventions. Such assistance covers most of the aid of a public nature afforded the blind, though in a certain number of cases there are Federal pensions or like grants, generally for war veterans, and also in a limited number of cases allowances by municipal bodies, in the form of pensions or other relief, not embraced in the census returns. These returns, however, constitute a fair measure of the extent to which the blind are a dependent class in the community.

In Table 70 are given, for the several geographic divisions of the United States and for each State, the total number of the blind returning special schedules, and of males and females separately, and the number reporting State or county aid, together with the percentage which persons so aided constitute of the total.

Of the whole number of blind persons returning special schedules for the country at large, almost one-fifth (18.9 per cent) report themselves as in receipt of such aid.[41] To what extent the aid thus given is sufficient to meet the needs of the recipients is not known. In most cases it may be assumed that it serves at least as a contribution to this end, often there being aid from the other sources to which reference has been made.

The proportions receiving aid in different geographic divisions and in different States show wide variations. The highest proportion is one-third (33.4 per cent), found in the East North Central division, and the lowest, one-twelfth (8.5 per cent), found in the Middle Atlantic. These two divisions, it is to be noted, the one having a proportion four times as great as the other, are contiguous to each other. The second highest proportion is for the Mountain division, with over one-fourth (27.3 per cent), followed by the New England, with over one-fifth (22.3 per cent), and the West North Central, with a little under one-fifth (17.5 per cent). The three southern divisions have percentages not very different, each having a proportion of from about one-eighth to a little over one-tenth (13.4 per cent for the South Atlantic, 11.4 per cent for the East South Central, and 11 per cent for the West South Central). The Pacific division has only a slightly smaller proportion (10.6 per cent).

These considerable differences, together with the differences among individual States, are doubtless to be accounted for to a certain extent by the misunderstanding by some of the blind as to what constitutes State or county aid, possibly in some communities there being included indoor as well as outdoor aid, and in a few cases both material allowances and bare doles. On the whole, the figures doubtless reflect the varying poor-relief procedure as applied to the blind in different parts of the country. In particular, the differences indicate in considerable degree the extent to which a special pension system for the blind has come into use, a practice now being adopted more and more widely. Thus the very high proportion of blind persons receiving State or county aid in the East North Central division is explained by the fact that Ohio, Illinois, and Wisconsin all

[41] Because of misunderstanding in some instances of the nature of the inquiry, it is possible that the number reported as being aided is slightly overstated.

TABLE 70.—BLIND POPULATION, BY SEX, REPORTING RECEIPT OF STATE OR COUNTY AID, BY DIVISIONS AND STATES: 1920

[Figures include only blind persons returning special schedules]

DIVISION AND STATE	TOTAL NUMBER			REPORTING RECEIPT OF STATE OR COUNTY AID					
				Number			Per cent of total [1]		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
UNITED STATES	40,913	23,977	16,936	7,741	4,916	2,825	18.9	20.5	16.7
GEOGRAPHIC DIVISIONS:									
New England	4,184	2,311	1,873	931	555	376	22.3	24.0	20.1
Middle Atlantic	7,807	4,430	3,377	667	435	232	8.5	9.8	6.9
East North Central	10,253	5,924	4,329	3,423	2,098	1,325	33.4	35.4	30.6
West North Central	4,881	2,905	1,976	855	548	307	17.5	18.9	15.5
South Atlantic	4,594	2,778	1,816	617	440	177	13.4	15.8	9.7
East South Central	3,371	2,062	1,309	385	263	122	11.4	12.8	9.3
West South Central	2,716	1,611	1,105	300	187	113	11.0	11.6	10.2
Mountain	1,400	887	513	382	262	120	27.3	29.5	23.4
Pacific	1,707	1,069	638	181	128	53	10.6	12.0	8.3
NEW ENGLAND:									
Maine	491	281	210	227	136	91	46.2	48.4	43.3
New Hampshire	337	189	148	119	82	37	35.3	43.4	25.0
Vermont	152	84	68	18	6	12	11.8	----	----
Massachusetts	2,381	1,267	1,114	502	290	212	21.1	22.9	19.0
Rhode Island	190	97	93	5	3	2	2.6	----	----
Connecticut	633	393	240	60	38	22	9.5	9.7	9.2
MIDDLE ATLANTIC:									
New York	3,414	1,865	1,549	427	265	162	12.5	14.2	10.5
New Jersey	921	517	404	38	26	12	4.1	5.0	3.0
Pennsylvania	3,472	2,048	1,424	202	144	58	5.8	7.0	4.1
EAST NORTH CENTRAL:									
Ohio	3,269	1,881	1,388	1,587	963	624	48.5	51.2	45.0
Indiana	1,833	1,063	770	167	116	51	9.1	10.9	6.6
Illinois	2,693	1,526	1,167	1,060	642	418	39.4	42.1	35.8
Michigan	1,346	778	568	143	84	59	10.6	10.8	10.4
Wisconsin	1,112	676	436	466	293	173	41.9	43.3	39.7
WEST NORTH CENTRAL:									
Minnesota	713	459	254	56	39	17	7.9	8.5	6.7
Iowa	965	561	404	395	243	152	40.9	43.3	37.6
Missouri	1,742	984	758	187	123	64	10.7	12.5	8.4
North Dakota	121	73	48	14	9	5	11.6	----	----
South Dakota	152	95	57	7	5	2	4.6	----	----
Nebraska	329	194	135	54	34	20	16.4	17.5	14.8
Kansas	859	539	320	142	95	47	16.5	17.6	14.7
SOUTH ATLANTIC:									
Delaware	123	79	44	7	7	----	5.7	----	----
Maryland	597	367	230	50	40	10	8.4	10.9	4.3
District of Columbia	197	121	76	7	3	4	3.6	2.5	----
Virginia	894	562	332	121	89	32	13.5	15.8	9.6
West Virginia	440	266	174	49	38	11	11.1	14.3	6.3
North Carolina	853	484	369	133	89	44	15.6	18.4	11.9
South Carolina	348	211	137	39	27	12	11.2	12.8	8.8
Georgia	841	512	329	171	120	51	20.3	23.4	15.5
Florida	301	176	125	40	27	13	13.3	15.3	10.4
EAST SOUTH CENTRAL:									
Kentucky	1,236	737	499	162	109	53	13.1	14.8	10.6
Tennessee	966	602	364	101	71	30	10.5	11.8	8.2
Alabama	669	400	269	66	43	23	9.9	10.8	8.6
Mississippi	500	323	177	56	40	16	11.2	12.4	9.0
WEST SOUTH CENTRAL:									
Arkansas	625	355	270	74	46	28	11.8	13.0	10.4
Louisiana	454	273	181	39	26	13	8.6	9.5	7.2
Oklahoma	549	339	210	63	39	24	11.5	11.5	11.4
Texas	1,088	644	444	124	76	48	11.4	11.8	10.8
MOUNTAIN:									
Montana	124	89	35	17	14	3	13.7	----	----
Idaho	103	56	47	13	7	6	12.6	----	----
Wyoming	18	13	5	1	1	----	----	----	----
Colorado	559	368	191	312	209	103	55.8	56.8	53.9
New Mexico	372	226	146	19	16	3	5.1	7.1	2.1
Arizona	54	39	15	3	3	----	----	----	----
Utah	138	77	61	15	11	4	10.9	----	----
Nevada	32	19	13	2	1	1	----	----	----
PACIFIC:									
Washington	377	225	152	26	23	3	6.9	10.2	2.0
Oregon	276	175	101	20	16	4	7.2	9.1	4.0
California	1,054	669	385	135	89	46	12.8	13.3	11.9

[1] Per cent not shown where base is less than 100.

have pension laws for the blind, and these are known to be extensively availed of. The percentages receiving aid in these three States are, respectively, 48.5, 39.4, and 41.9. Similarly the high proportion in the Mountain division is largely to be attributed to the high proportion in the pension State of Colorado, 55.8 per cent, this being the highest proportion for any individual State. In the New England division the proportion is similarly raised by the high percentages for Maine and New Hampshire (46.2 and 35.3, respectively). In the West North Central States a like effect is produced by the proportion for Iowa (40.9 per cent). In fact, every State with a pension law for the blind operative at the time of the census shows a proportion for State or county aid of at least one-third, often two-fifths, of its total blind population, with the exception of Nebraska, Kansas, and Idaho.[42] The higher proportion for New York over other States in the Middle Atlantic division is due to the granting of pensions by New York City, a procedure specially allowed by law. Only a few States not having laws as to pensions for the blind show proportions receiving State or county aid of over one-sixth, in some the proportions being much less.

In all geographic divisions and in all States male recipients outnumber female, the ratio averaging about 5 to 4, a ratio, however, not greatly different from that between the whole numbers of blind in the two sexes.

In Table 71, for the whole country, are given figures showing the proportions of State and county aid, according to sex and race and nativity groups.

TABLE 71.—BLIND POPULATION, BY SEX, RACE, AND NATIVITY, REPORTING RECEIPT OF STATE OR COUNTY AID, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

RACE AND NATIVITY	TOTAL NUMBER			REPORTING RECEIPT OF STATE OR COUNTY AID					
				Number			Per cent of total		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All classes	40,913	23,977	16,936	7,741	4,916	2,825	18.9	20.5	16.7
White	36,640	21,330	15,310	6,985	4,392	2,593	19.1	20.6	16.9
Native	30,313	17,451	12,862	5,798	3,588	2,210	19.1	20.6	17.2
Foreign-born	6,327	3,879	2,448	1,187	804	383	18.8	20.7	15.6
Negro	3,936	2,442	1,494	709	495	214	18.0	20.3	14.3
Indian	308	182	126	37	22	15	12.0	12.1	11.9
Other colored	29	23	6	10	7	3	(1)	(1)	(1)

[1] Per cent not shown where base is less than 100.

No great differences are found among these groups, except for Indians, who show a proportion considerably below the proportions for the other groups. This is no doubt because they have been so generally under Federal care. Native whites are highest, with a proportion of 19.1 per cent, followed by foreign-born whites, with a proportion of 18.8 per cent, and by Negroes, with a proportion of 18 per cent. For Indians the proportion is 12 per cent. Only for this race are the proportions for males and for females very similar.

The proportions for the several groups probably correspond to their proportions in the general population, of different areas, in relation to the accessibility of public aid, especially in the form of pensions. There seems to be little connection between the proportion gainfully employed and the proportion receiving public aid for the different groups.

[42] On the extent of pension laws for the blind, see R. B. and M. B. Irwin, Blind Relief Laws and Their Administration, 1920 (Red Cross Institute for the Blind); Harry Best, The Blind: Their Condition and the Work Being Done for Them in the United States, 1919, pp. 547–577.

In Table 72 are presented figures showing the age of the recipients of aid, for both sexes, and each sex separately.

TABLE 72.—BLIND POPULATION, BY SEX AND AGE, REPORTING RECEIPT OF STATE OR COUNTY AID, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

AGE	TOTAL NUMBER			REPORTING RECEIPT OF STATE OR COUNTY AID					
				Number			Per cent of total		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All ages	40,913	23,977	16,936	7,741	4,916	2,825	18.9	20.5	16.7
Under 20 years	5,395	3,007	2,388	434	256	178	8.0	8.5	7.5
Under 1 year	4	1	3						
1 to 4 years	216	125	91	6	1	5	2.8	0.8	[1]
5 to 9 years	1,057	600	457	85	49	36	8.0	8.2	7.9
10 to 14 years	2,044	1,154	890	169	109	60	8.3	9.4	6.7
15 to 19 years	2,074	1,127	947	174	97	77	8.4	8.6	8.1
20 to 44 years	8,796	5,390	3,406	1,640	1,075	565	18.6	19.9	16.6
20 to 24 years	1,677	951	726	201	115	86	12.0	12.1	11.8
25 to 29 years	1,636	986	650	281	186	95	17.2	18.9	14.6
30 to 34 years	1,484	872	612	254	152	102	17.1	17.4	16.7
35 to 39 years	2,027	1,289	738	461	305	156	22.7	23.7	21.1
40 to 44 years	1,972	1,292	680	443	317	126	22.5	24.5	18.5
45 to 64 years	10,913	6,911	4,002	2,506	1,711	795	23.0	24.8	19.9
45 to 49 years	2,446	1,610	836	595	403	192	24.3	25.0	23.0
50 to 54 years	2,383	1,564	819	562	386	176	23.6	24.7	21.5
55 to 59 years	2,842	1,827	1,015	665	452	213	23.4	24.7	21.0
60 to 64 years	3,242	1,910	1,332	684	470	214	21.1	24.6	16.1
65 years and over	15,384	8,441	6,943	3,099	1,838	1,261	20.1	21.8	18.2
65 to 69 years	3,443	2,039	1,404	794	518	276	23.1	25.4	19.7
70 to 74 years	3,479	1,999	1,480	720	473	247	20.7	23.7	16.7
75 to 79 years	3,518	1,955	1,563	690	396	294	19.6	20.3	18.8
80 to 84 years	2,644	1,380	1,264	498	262	236	18.8	19.0	18.7
85 years and over	2,300	1,068	1,232	397	189	208	17.3	17.7	16.9
Age not reported	425	228	197	62	36	26	14.6	15.8	13.2

[1] Per cent not shown, base being less than 100.

At the period 1 to 4 years the proportion is relatively low. The proportion for males at this period is less than 1 per cent, but for females several times as great, though the numbers involved for either sex are very small. At 5 to 9 years of age the percentage for both sexes is 8. The proportion on the whole steadily advances up to the period 45 to 49 years, where it is practically one-fourth (24.3 per cent), thereafter gradually declining through the remainder of life. The ratio between the two sexes remains fairly constant at all periods, except among the very young, when, as previously stated, females are proportionately in excess.

The largest proportions of the blind receiving aid might be expected in advanced life and old age, because of the generally greater need of persons at that time of life. There are several reasons, probably, why this is not actually the case. In the first place, a relatively larger proportion of the very old blind, especially blind women, are cared for in special homes under private control. In the second place, in many cases, among the older groups, blindness is a recent affliction, and the most immediate aid available has seemed to be that of the family or other relatives. Finally, it may be that the blind of a younger and more vigorous age are themselves more attentive to the matter and are more inclined to insist upon whatever public provision may be made.

In any event, the need of special aid for the blind manifests itself early. Even in childhood and youth relief is called for to meet their material wants. By the

time of the beginning of adult years, which should normally be the entrance upon the working period of life among those who must earn their living, the proportion of the blind in need of public subsidies has become considerable. This proportion increases till the period past middle age, a period when the ordinary worker with sight may be presumed to be at his fullest industrial activity. In advanced years, when among the general population the need of outside assistance would be most obvious, the proportion among the blind receiving public aid is seen to be even less than the proportion for most of adult life.

Economic loss in blindness.—The final subject calling for attention in connection with the economic condition of the blind has relation to the extent to which blindness acts as a bar to gainful employment—that is, the economic loss in man power to the working force of the United States resulting from the existence of this affliction. It is to be remembered at the outset that an exceedingly large number of the sightless are in advanced years, a great portion of whom would in any event have retired from active labor, and would not be industrially employed even if in possession of their vision, so that the total number of the blind who are not engaged in remunerative tasks would not represent the real number prevented therefrom by the fact of blindness alone.

By comparison of the number of blind persons losing sight in adult life who have been gainfully employed prior to the time of that loss with the number losing sight in adult life who are still gainfully employed, we are able, without present regard to the factor of old age, to ascertain the number who on account of their blindness are incapacitated from continuing at gainful employment. The available information concerning the occupations previously followed, being closely connected with both the age when blindness came on and the causes which produced it, is discussed in the pages immediately following, in the section on causes. Taking certain figures from that section (see Table 86, p. 152), it is seen that the number of blind persons returning special schedules who had become blind at 20 years or over, and who before the loss of their sight were gainfully occupied, is 17,899. The number of blind persons who became blind at such age and are still gainfully occupied (though not necessarily at the same occupation) is 3,619—3,187 males and 432 females. (See Table 63, p. 95.) There are, accordingly, 14,280 blind persons who but for their blindness might now be engaged in remunerative employment. In other words, 79.8 per cent of the adult blind are apparently shut out of gainful activity in consequence of their infirmity. As those returning special schedules constitute only 77.8 per cent of the full number enumerated, the total number of the blind so disqualified is theoretically about 18,000.

The actual loss of man power, however, is not quite so great. Of the blind who lost sight in adult life and were once gainfully employed, at least 4,770 lost it after 64, or at a time when persons generally have ceased economic activities.

In addition, of the 12,731 blind persons between 20 and 65 years of age who were gainfully occupied before the loss of their vision, 4,570 must have reached the age of 65, this number being estimated on the proportion (35.9 per cent) of those in the total number reported as having lost sight between the ages of 20 and 64 (17,341) who had reached the age of 65 (6,223) at the date of the census. This estimate does not cover the unknown number of persons who during this period have had to discontinue economic activities at the onset of blindness. There are, however, at least 9,340 blind persons, once occupied, who are now 65 years of age and over. If the number for all the blind were as great proportionally as for those returning special schedules (though this would understate the number, from the fact that the proportion returning special schedules for those in advanced life is a little less than the proportion for all the blind), the total number would be approximately 12,000

Subtracting 12,000 from 18,000, there remain 6,000 blind persons under 65 years of age who were once gainfully occupied but now are not—that is, the number who by reason of their blindness are precluded from remunerative employment.

The total blind population of the United States, moreover, between the ages of 20 and 64 is 24,890. (See Table 16, p. 32.) Of these, 42.8 per cent (the proportion among those returning special schedules) lost their sight prior to the twentieth year, or 10,653. As the proportion of the blind losing sight before this time who are not gainfully employed is 74.4 per cent, there are thus 7,926 blind persons in early or middle adult life who might be remuneratively employed but for their blindness. This represents the number of blind persons of the active working age who have become blind before adult life and are thus debarred from gainful occupation. Adding it to the number still in the period of economic activity who have been compelled to surrender their occupational pursuits, we have 14,000—or 56 per cent of all those between 20 and 64—as the approximate number, or rather the minimum number, of blind persons who are directly prevented by reason of their absence of vision from participation in gainful occupation.[43]

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[43] In the foregoing discussion no reference can be made, on the basis of available data, to the limitations upon the earning power of those of the blind assumed to be gainfully occupied.

Another way of estimating the extent to which the blind are rendered incapable of being assimilated into the economic forces of the country is to compare the number of the blind found to be gainfully occupied with the number in the general population. The proportion for the latter 10 years of age and over is 50.3 per cent, while that for the former is 18.1 per cent. If the proportion for the general population be applied to all the blind as enumerated, their number gainfully occupied would be 25,551. But as only 9,225 (on the basis of returned schedules) are actually so, it appears that 16,326 are barred by their blindness from economic activity. As, however, 39.4 per cent of the blind are over 64 years, or beyond the working period of life, while only 4.7 per cent of the general population are so, this number should be reduced by 34.7 per cent, so that the total number of the blind withdrawn from gainful tasks as a result of their blindness is 10,661.

CAUSES OF BLINDNESS

In studying the facts relating to the blind population, of primary importance is the question whether the affliction which they represent must be a permanent condition in human society or whether there may be a reduction of it in a greater or less degree by appropriate measures. Hence an examination of the reported causes of blindness is necessary to ascertain the extent of blindness attributable to each cause and to discover how far each may be brought under control. At the outset, it should be stated that the cause reported represents, in numerous cases, only the patient's diagnosis and not the doctor's.

Description of the eye.—The human eye is a mechanism of coordinated parts, lesion or injury or weakening of any one of which may impair its functioning, or even lead to the destruction of sight in it. The eyeball is a movable, almost spherical, mass lying in the eye cavity of the skull. Its external surface in front is protected by a membrane known as the conjunctiva. The outer coat of the eye consists of the transparent cornea, in front, and of the sclera or sclerotic coat, or "white" of the eye, which is of rather tough texture and which serves as a protecting surface. Within the sclera are two other coats or linings of the eye. The first is in three parts, known as the choroid, iris, and ciliary body, sometimes jointly called the uvea. The choroid is a membrane composed chiefly of blood vessels, extending around most of the eye. Toward the front it becomes the ciliary body. Directly in front it is continuous with the iris, a thin diaphragm, which is perforated by the pupil, and which gives the eye its particular color. The iris is thus immediately behind the cornea. The innermost coat of the eye is the retina, an almost transparent membrane, which passes well up on each side of the eye, and which at the back is directly connected with the optic nerve, the retina, in fact, being merely a membranous extension of the optic nerve. Behind the iris is suspended the crystalline lens. In front of the lens lies a watery substance, called the aqueous humor, and at its rear a jellylike mass, called the vitreous humor, which fills the large posterior part of the eye. Attached to the eye, for its control, are the special eye muscles. Other appendages provided for the protection of the eye are the lachrymal apparatus, the eyelids, and the eyebrows. The inner surface of the eyelids is covered with the conjunctiva.

The eye in all these parts is subject to injury—to disease acting from within and to accident or other mischance acting from without. Diseases that bring on blindness are of two kinds—affections which are concerned with some part of the eye, the inroads of which are largely limited to the eye itself, and diseases of a more general character, involving other parts or members of the body, especially of the head, the damage to the eye being frequently the most serious of their consequences. Blindness is associated with various general ailments. Disorders of the blood or of the circulatory system, of the brain and nervous system, of the digestive system, of the muscular system, of the nose and throat, of the ductless glands, may all have ocular manifestations or ocular complications. Certain zymotic (i. e., infectious or contagious) diseases may carry their subversive operations to the regions of the eye, with results of aggravated character, perhaps, when such diseases are also exanthematic, or eruptive, in their nature.

External injuries from accidents or some force operating from without may be said to cause blindness when any necessary part of the visual apparatus,

including the optic nerve, is shattered or deranged or otherwise damaged to such an extent that its effective functioning ceases. Destruction of the sight through such means may be direct and immediate, or it may be indirect and of more or less gradual approach, following infection or inflammation or other injury which has itself been occasioned by some force acting from outside. In a large sense, then, accidents include such externally induced agencies as poisoning, foreign substances in the eye, exposure to heat, strained eyes, etc. To a certain extent, also, these may be regarded as embracing occupational disease or resulting from industrial surroundings. In particular, from poisoning there may be set up toxic irritation of the mucous membrane of the eye, especially of the conjunctiva, while in certain cases there may be toxic effects upon the retina or optic nerve. Some portion of blindness, furthermore, is due to structural defects of the eye or malformations, for the most part existing from birth.

Most blindness reported as congenital, or as existing from birth, is really ascribable to some disease operating at birth or shortly thereafter. Possibly a small part of congenital blindness is, in fact, due to antenatal conditions. A certain amount is of hereditary origin, and little has been learned as yet of its exact nature. Some congenital blindness, unrelated to any specific disease, is probably the result of arrested development in some part of the ocular system or of malformations therein.

Detailed analysis of causes.—In the treatment of statistical data relating to the causation of blindness, it should be understood that absolute accuracy of figures for the several causes may not be expected; the returns on the subject represent only the best and fullest information that it is possible to secure. Exact knowledge with respect to the cause of much blindness must remain a difficult matter. The visual apparatus, as seen from the condensed description above, is a very delicate and complex one. When it fails to function properly, only by a skilled medical examination, possibly that of a specialist, can the cause be determined. Such an examination is not commonly had, and the reported cause not infrequently can be little better than a conjecture; these conjectures, however, in the aggregate, represent a fair approximation of the number of cases attributable to each of the classified causes, and an improvement, no doubt, upon those of previous censuses.[44]

Table 73 gives the number and the per cent distribution for the several causes of blindness, as reported in 1920, by the blind returning special schedules. The causes are grouped, in this table, under four main heads.

The statistics given in Table 73 for the several causes of blindness indicate only the number of those living in 1920 who have become blind from these causes and do not indicate the number becoming blind in a given period, or since the last census. Causes operative in the earlier years of life are thus a trifle exaggerated. Furthermore, as for the census year 1920 there is a relatively greater proportion of returned schedules from the younger blind persons, the proportions for diseases of infancy and childhood are correspondingly increased.

Somewhat over one-half (54.4 per cent) of all blindness is due to disease. The proportion caused by disease should actually be larger, as much of the blindness tabulated, through lack of information, under the head "Causes indefinitely or inaccurately reported" or "Cause unknown" has its origin in disease of one kind or another.[45] Of blindness occasioned by diseases, 70.9 per cent (equivalent

[44] In 1900 classification of the diseases responsible for blindness was according to the part of the eye concerned. As some disorders, as, for example, venereal disease, involved more than one part, such a classification was necessarily somewhat arbitrary and was in general unsatisfactory. (See Reference Handbook of the Medical Sciences, ed. 1923, II, p. 104; IV, p. 241.)

[45] Of the total number returning schedules there are 12.5 per cent who failed to report any cause.

to 38.6 per cent of the total for all causes) is caused by some specific disease of the eye; 28.9 per cent (representing 15.7 per cent of all causes) is caused by some disease other than a specific affection; a very small number of persons reported one eye as blinded by a specific affection, blindness in the other eye being the result of some general disease.

TABLE 73.—BLIND POPULATION, BY REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	Number	Per cent distribution [1]
All causes	40,913	100.0
I.—Disease	19,483	54.4
A.—Specific affection of the eye	13,816	38.6
Diseases of the conjunctiva	2,192	6.1
Trachoma (granular eyelids)	555	1.6
Ophthalmia neonatorum	1,198	3.3
Gonococcus conjunctivitis (exclusive of ophthalmia neonatorum)	44	0.1
All other ophthalmia and ophthalmia not specified	363	1.0
All other	32	0.1
Diseases of the cornea	440	1.2
Corneal ulcer	264	0.7
Staphyloma	23	0.1
Keratitis (not otherwise specified)	99	0.3
Corneal opacities	38	0.1
All other	16	(2)
Diseases of the iris	240	0.7
Iritis (not otherwise specified)	213	0.6
All other	27	0.1
Diseases of the choroid	66	0.2
Glaucoma	1,932	5.4
Diseases of the retina	497	1.4
Retinitis pigmentosa	44	0.1
Retinitis hemorrhagica	104	0.3
All other retinitis	94	0.3
Detachment of the retina	177	0.5
All other	78	0.2
Diseases of the optic nerve	2,458	6.9
Atrophy of the optic nerve	1,756	4.9
All other	702	2.0
Diseases of the crystalline lens	4,905	13.7
Cataract	4,896	13.7
All other	9	(2)
Amaurosis and other disturbances of vision	57	0.2
Progressive myopia	118	0.3
Cancer and other neoplasms	247	0.7
Neoplasms of the eyeball	124	0.3
Neoplasms other than of the eyeball	123	0.3
Buphthalmos, hydrophthalmia, macrophthalmia	52	0.1
All other diseases of the eye	161	0.4
Combination of two or more diseases of the eye	451	1.3
B.—Disease other than specific affection of the eye	5,623	15.7
Measles	797	2.2
Meningitis	526	1.5
Scarlet fever	416	1.2
Diseases of the head other than meningitis	384	1.1
Influenza (grippe)	282	0.8
Typhoid fever	253	0.7
Smallpox	235	0.7
Rheumatism	184	0.5
Syphilis	184	0.5
Other acute eruptions of the skin	165	0.5
Kidney diseases (not otherwise specified)	140	0.4
Spinal trouble (not otherwise specified)	130	0.4
Diabetes	91	0.3
Puerperal fever	87	0.2
Bright's disease	77	0.2
Locomotor ataxia	68	0.2
Diphtheria	45	0.1
Tuberculosis	14	(2)
All other diseases, not specific affections of the eye	1,318	3.7
Combination of two or more diseases	227	0.6
C.—Specific affection of the eye for one eye, disease other than of the eye for the other	44	0.1
II.—Accident or other injury (including sympathetic ophthalmia)	5,913	16.5
Directly affecting the eye	3,152	8.8
From explosives:		
Of dynamite, gunpowder, etc.	797	2.2
Of nature not stated	121	0.3
Of other kinds	173	0.5
From flying objects other than in explosions	380	1.1
From cutting or piercing instruments	323	0.9
From firearms	250	0.7
From burns	113	0.3
From falls	65	0.2
From unfortunate results of operations	51	0.1
By animals	27	0.1
From electricity	16	(2)
By machines	10	(2)
From other definitely reported causes	501	1.4
From causes not definitely reported	214	0.6
From combination of causes	111	0.3

See footnotes at end of table.

TABLE 73.—BLIND POPULATION, BY REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920—Continued

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	Number	Per cent distribution
II.—Accident or other injury—Contd.		
Not directly affecting the eye	511	1.4
From blows to the head	155	0.4
From falls	148	0.4
From firearms	44	0.1
From unfortunate results of operations	29	0.1
By animals	20	0.1
From cutting or piercing instruments	12	(2)
From other definitely reported causes	47	0.1
From causes not definitely reported	56	0.2
Part affected uncertain	2,239	6.3
From firearms	338	0.9
From falls	232	0.6
In mines or quarries	85	0.2
From unfortunate results of operations	63	0.2
By animals	56	0.2
By machines	25	0.1
From other definitely reported causes	300	0.8
From causes not definitely reported	1,140	3.2
From combination of classes of causes	11	(2)
III.—Other definitely reported causes	937	2.6
Poisoning	311	0.9
Alcoholic poisoning (other than wood alcohol)	19	0.1
Tobacco poisoning	20	0.1
Wood alcohol poisoning	51	0.1
Chronic lead poisoning	25	0.1
Other chronic occupational poisoning	15	(2)
All other	181	0.5
III.—Other definitely reported causes—Continued.		
Malformations	142	0.4
Of the crystalline lens	5	(2)
Albinism	24	0.1
All other	113	0.3
Foreign substances in the eye	431	1.2
Acids and other substances of a chemically destructive nature	264	0.7
Dust and other foreign particles	167	0.5
All other definitely reported causes	53	0.1
IV.—Causes indefinitely or inaccurately reported	9,119	25.5
Congenital (cause not stated)	2,635	7.4
Old age	770	2.2
Neuralgia	548	1.5
Exposure to heat	507	1.4
Sore eyes	497	1.4
Strained eyes	226	0.6
Military service	223	0.6
Medical malpractice	220	0.6
Scrofula	212	0.6
Paralysis	187	0.5
Wrong medicine or treatment	176	0.5
Colds	154	0.4
Catarrh	121	0.3
Change of life (menopause)	107	0.3
Malaria	38	0.1
Electric light	32	0.1
Exposure to cold	31	0.1
All other causes indefinitely or inaccurately reported	2,435	6.8
V.—Combination of different classes of causes	336	0.9
VI.—Cause unknown or not reported	5,125	-------

[1] Based upon the number for whom the cause was reported.
[2] Less than one-tenth of 1 per cent.

Practically one-sixth of the total amount of blindness (16.5 per cent) is reported as caused by accidents. If to these be added all other external causes (excepting those of disease), including, in addition, other definitely reported causes, such as poisonings, malformations, and foreign subtances in the eye, the percentage is 19.1. With the inclusion of some proportion of the causes inaccurately or indefinitely stated, the real proportion for accidents or external forces would be appreciably increased.[46] These indefinitely or inaccurately reported causes comprise 25.5 per cent of the total.

[46] The figures for blindness from accidents may be slightly exaggerated, however, the real or underlying factors involved being sometimes a disease or debility of the eye not readily recognized and superficially attributed to accidents.

Of specific affections of the eye, those involving diseases of the crystalline lens rank first, slightly over one-eighth (13.7 per cent) of all blindness being attributable thereto. The one disease responsible for this high proportion is cataract, or opacity of the lens, which covers virtually all of such kind of blindness. The proportion for cataract, moreover, is understated; not a little of the blindness charged to old age is caused by it, as well as other blindness indefinitely or inaccurately reported (especially exposure to heat, one form of which is known as "glassworker's cataract"), and possibly some ascribed to such general diseases as rheumatism and diabetes.

The next largest class of diseases producing blindness is that of diseases of the optic nerve, with 6.9 per cent chargeable to it. The chief specific disorder here is atrophy of the optic nerve, which forms two-thirds of this class of blindness (representing 4.9 per cent of all). The proportion is really larger than indicated by these figures, much of the blindness classed under meningitis and other exanthematic diseases and under rheumatism, and a certain part of that laid indirectly to accidents, being no doubt chargeable to diseases of the optic nerve.

Diseases of the conjunctiva, the external membrane of the eyeball, rank not far behind, with a proportion of 6.1 per cent. Probably some of the blindness attributed to the exanthematic diseases given under general diseases should be included here. Over one-half (3.3 per cent of all) of conjunctival disorders is ascribable to ophthalmia neonatorum, or inflammation of the eyes of the newborn, and one-fourth (1.6 per cent of all) to trachoma, or granular lids. The proportion for trachoma is doubtless somewhat larger than reported, it being the actual cause of most of the blindness charged to "sore eyes."[47] Other ophthalmia, together with gonococcus conjunctivitis, makes up most of the remainder of conjunctival diseases.

Following these three classes of diseases in order of importance, there comes a single disorder, in a class by itself, glaucoma, an affection marked, in its acute form, by intense intraocular pressure and venous congestion. The proportion ascribed to this disease is 5.4 per cent, though the actual proportion is greater, much of the blindness attributed to neuralgia, some of that attributed to old age and to rheumatism, and perhaps a portion attributed to strained eyes being really chargeable to glaucoma.

Much below these four classes of affections which produce blindness are the remaining classes of ocular diseases. To retinal diseases are due 1.4 per cent. Perhaps to this should be added a certain amount of the blindness laid to diseases of the digestive system, meningitis, typhoid fever, and rheumatism. Affections of the retina are of different orders, the various forms of retinitis (or inflammation of the retina), especially retinitis hemorrhagica and retinitis pigmentosa, accounting for just one-half (0.7 per cent of all blindness) and detachment of the retina accounting for one-third (0.5 per cent of all). To corneal diseases are due 1.2 per cent; a possible addition to this is in some of the blindness assigned to different infectious or exanthematic diseases. Of affections of the cornea, corneal ulcer embraces almost two-thirds (0.7 per cent of the total); keratitis, consisting of divers forms of inflammatory disorders of the cornea, the main forms probably being phlyctenular keratitis and interstitial keratitis, embraces about one-fourth (0.3 per cent of all); and staphyloma and corneal opacities cover most of the remainder. To cancer and other neoplasms are ascribed 0.7 per cent, divided about equally between neoplasms of the eyeball and other neoplasms. To diseases of the iris are ascribed 0.7 per cent, most being chargeable to iritis, or inflammation of that part of the eye (representing 0.6 per cent of the total). The proportion here is possibly to be increased by some of the blindness attributed

[47] Blindness reported in the special schedules as due to "sore eyes" occurring at or shortly after birth is tabulated generally under ophthalmia neonatorum.

to certain infectious diseases and to rheumatism. To progressive myopia, or progressive nearsightedness or shortsightedness, is ascribed 0.3 per cent. Some of the blindness imputed to strained eyes may be due to this affection. To diseases of the choroid are ascribed 0.2 per cent. This proportion might be added to from some of the blindness charged to certain infectious diseases. To amaurosis, usually a condition of defective vision unexplained by lesion in the eye or by refractive error, are ascribed 0.2 per cent. To buphthalmus, hydrophthalmus, and macrophthalmus, all representing some abnormal condition of the eye, are ascribed 0.1 per cent. Various other diseases of the eye and combinations of two or more diseases account for 1.7 per cent of blindness.

It is very gratifying to find that among the five leading specific affections of the eye, three—cataract, ophthalmia neonatorum, and trachoma—are to a very considerable extent preventable by present known means; the two last named are almost entirely preventable, and with comparatively little difficulty. Glaucoma of an acute nature may perhaps be added.

Among general diseases causing blindness, those not originating in the eye itself, the one easily standing foremost is measles, with one-seventh of such blindness (2.2 per cent of all) charged to it. Measles, meningitis, scarlet fever, and other diseases of the head (chiefly brain fever, brain tumor, and hydrocephalus), each responsible for not less than 1.1 per cent of all blindness, and most of them diseases of an exanthematic character, are together responsible for considerably over one-third of blindness from general diseases (equivalent to 6 per cent of all). These four disorders, together with influenza, typhoid fever, smallpox, rheumatism, and syphilis, none chargeable individually with less than 0.5 per cent, are chargeable jointly with three-fifths of the blindness from general diseases (equivalent to 9.2 per cent of all). The remainder is covered by various complaints, including other acute eruptions of the skin, kidney disease, spinal trouble, diabetes, puerperal fever, Bright's disease, locomotor ataxia, diphtheria, and tuberculosis.

For many of these general diseases it is believed that the proportions assigned are in greater or less degree overstated. Not a little of the blindness so designated, as has just been found, is really to be attributed to some specific eye disease, probably to a large extent to certain of the minor eye disorders which are relatively little known.[48]

[48] Venereal disease, directly or indirectly, plays a very important part in the causation of blindness, a part not fully revealed in the statistics. Venereal disease as a cause of blindness is most often reported by some institution in which a blind person is a patient or inmate, there being no motive in such case for concealment of the true condition. The proportions definitely assigned to gonococcus conjunctivitis, syphilis, and to locomotor ataxia (a disorder resulting from syphilitic infection and often accompanied by atrophy of the optic nerve) are small (0.8 per cent), but the actual proportions are doubtless considerably larger. The eye may suffer from both inherited and acquired venereal disease. Syphilis in particular is a material factor in blindness occurring in early or middle adult life, while hereditary syphilis is a no less considerable factor in blindness of infancy and childhood, and even of that coming on in later years. The eye at times may even be the seat of the primary sore in venereal disease. The special effects upon the eye are inflammation and wastage. Not only may different parts of the eye be involved, but its constituents—blood, membrane, tissue, nerve, etc., even including the bony structure of the eye and its muscles—may be affected. Among the various disorders of the eye for which venereal disease is responsible are several nervous and motor affections. It is said to be by far the most frequent cause of paralysis of both extraocular and intraocular muscles. Ophthalmia neonatorum is largely due to venereal infection. Basically due to such infection, also, is some portion of the blindness charged to conjunctivitis and other affections of the conjunctiva; atrophy of the optic nerve and other affections of the optic nerve, especially optic neuritis; corneal ulcer, keratitis, and other affections of the cornea; retinitis and other affections of the retina; iritis and choroiditis and other affections of the iris and choroid, besides some indefinitely reported affections, especially paralysis, and perhaps some of the blindness attributed to certain general diseases, especially rheumatism.

The proportion of accidents affecting the eye directly (8.8 per cent) is almost six times the proportion affecting it indirectly (1.4 per cent). The leading single means of accidental damage to the eye is explosions, for the most part of dynamite, gunpowder, etc., occurring in mines and quarries, in construction work, or from bursting shells. To explosives is attributed directly nearly one-fifth of blindness from accidents (3 per cent of all). Over one-tenth of all the blindness resulting from accidents (1.6 per cent of all) is occasioned in some manner from the use of firearms. Proportions are also relatively high from falls (1.2 per cent); from flying objects, mainly small fragments of metal (1.1 per cent); and from cutting or piercing instruments (approximately 0.9 per cent). Other accidental causes of blindness are blows on the head, unfortunate results of operations, burns, injuries from machines, injuries by animals, injuries in mines and quarries, etc.

Of other definitely reported causes (2.6 per cent of the total), the larger part are more or less akin to accidents; the most important single cause is foreign substances in the eye, which is responsible for almost one-half of this class (1.2 per cent of all). Nearly two-thirds of blindness from foreign substances in the eye result from acids and other substances of a chemically destructive nature, and over one-third comes from entry into the eye of dust and other particles. The cause with the next largest proportion is poisoning, with about one-third of this class (0.9 per cent of all). Wood alcohol is the chief offender here, being charged with about one-sixth of blindness from poisoning. Other forms of poisoning resulting in blindness are general alcoholic poisoning, tobacco, chronic lead, and other occupational poisoning. Malformations of the eye are accountable for the remaining one-sixth of blindness from this group of causes (constituting 0.4 per cent of all).

Under the head of causes of blindness indefinitely or inaccurately reported (25.5 per cent) are embraced a miscellaneous list, most of which, upon larger knowledge and more complete description in the schedules returned, could find proper place under one of the foregoing definite classifications. Far ahead among such causes is congenital blindness, so tabulated only when no specific disorder at or near birth has been disclosed in the returns. To congenital blindness (constituting 7.4 per cent of all) over one-fourth of blindness of this description is ascribed. Following in order are old age, neuralgia, exposure to heat, sore eyes, strained eyes, military service, medical malpractice, scrofula, paralysis, wrong medicine or treatment, colds, catarrh, change of life (menopause), malaria, electric light, and exposure to cold. Blindness from military service is assigned as a cause only in the absence of any specific eye trouble, much of the blindness of this nature being a result of hardships in military service. Probably, as already pointed out, a very considerable amount of the blindness alleged to be caused by old age really belongs under the head of cataract or glaucoma. Much of the blindness charged to neuralgia is doubtless due to glaucoma. A certain part of the blindness attributed to exposure to heat actually has cataract as its cause. Most of the blindness laid to sore eyes is undoubtedly caused by trachoma. Possibly some portion of the blindness reported as due to strained eyes should be assigned to progressive myopia or to glaucoma. A greater or less amount of the blindness attributed to the remaining indefinitely or inaccurately reported causes should no doubt be added to the proportions for different specifically designated causes.

To indicate to what extent the various causes of blindness may affect differently males and females, and at the same time to indicate the changes from 1910 to 1920 in the proportions for the several causes, there are presented figures separately for each of the five groups of causes of blindness which have just

been considered—specific eye affections, general diseases, accidents, other definitely reported causes, and indefinitely and inaccurately reported causes—separate treatment serving better for purposes of comparison. Table 74 gives for both sexes and for males and females separately, for the causes of blindness due to specific affection of the eye, the number and the percentage distribution by cause, for 1920 and the percentage distribution for 1910.

TABLE 74.—BLIND POPULATION, BY SEX, REPORTING BLINDNESS DUE TO SPECIFIC AFFECTION OF THE EYE, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	NUMBER, 1920			PER CENT DISTRIBUTION					
				1920			1910		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Specific affection of the eye, total	13,816	7,331	6,485	100.0	100.0	100.0	100.0	100.0	100.0
Diseases of the conjunctiva	2,192	1,094	1,098	15.9	14.9	16.9	13.4	13.3	13.6
Trachoma (granular eyelids)	555	299	256	4.0	4.1	3.9	5.3	5.6	5.0
Ophthalmia neonatorum	1,198	555	643	8.7	7.6	9.9	7.0	6.6	7.5
Gonococcus conjunctivitis (exclusive of ophthalmia neonatorum)	44	29	15	0.3	0.4	0.2	0.3	0.4	0.1
All other ophthalmia and ophthalmia not specified	363	192	171	2.6	2.6	2.6	(1)	(1)	(1)
All other	32	19	13	0.2	0.3	0.2	0.8	0.7	0.9
Diseases of the cornea	440	230	210	3.2	3.1	3.2	3.3	3.4	3.1
Corneal ulcer	264	154	110	1.9	2.1	1.7	2.7	2.8	2.6
Staphyloma	23	16	7	0.2	0.2	0.1	0.3	0.4	0.3
Keratitis (not otherwise specified)	99	38	61	0.7	0.5	0.9	(1)	(1)	(1)
Corneal opacities	38	15	23	0.3	0.2	0.4	(1)	(1)	(1)
All other	16	7	9	0.1	0.1	0.1	0.2	0.2	0.2
Diseases of the iris	240	115	125	1.7	1.6	1.9	1.6	1.6	1.7
Iritis (not otherwise specified)	213	102	111	1.5	1.4	1.7	(1)	(1)	(1)
All other	27	13	14	0.2	0.2	0.2	(1)	(1)	(1)
Diseases of the choroid	66	32	34	0.5	0.4	0.5	0.2	0.3	0.1
Glaucoma	1,932	785	1,147	14.0	10.7	17.7	11.9	9.0	15.2
Diseases of the retina	497	325	172	3.6	4.4	2.7	2.2	2.8	1.5
Retinitis pigmentosa	44	31	13	0.3	0.4	0.2	0.3	0.4	0.2
Retinitis hemorrhagica	104	65	39	0.8	0.9	0.6	0.5	0.6	0.4
All other retinitis	94	72	22	0.7	1.0	0.3	(1)	(1)	(1)
Detachment of the retina	177	124	53	1.3	1.7	0.8	1.1	1.4	0.8
All other	78	33	45	0.6	0.5	0.7	0.2	0.3	0.1
Diseases of the optic nerve	2,458	1,612	846	17.8	22.0	13.0	22.2	27.0	16.6
Atrophy of the optic nerve	1,756	1,185	571	12.7	16.2	8.8	21.7	26.5	16.2
All other	702	427	275	5.1	5.8	4.2	0.5	0.5	0.5
Diseases of the crystalline lens	4,905	2,568	2,337	35.5	35.0	36.0	39.4	36.9	42.2
Cataract	4,896	2,563	2,333	35.4	35.0	36.0	39.3	36.8	42.1
All other	9	5	4	0.1	0.1	0.1	0.1	0.1	0.1
Amaurosis and other disturbances of vision	57	32	25	0.4	0.4	0.4	0.5	0.6	0.3
Progressive myopia	118	64	54	0.9	0.9	0.8	0.3	0.3	0.3
Cancer and other neoplasms	247	139	108	1.8	1.9	1.7	0.5	0.4	0.6
Neoplasms of the eyeball	124	73	51	0.9	1.0	0.8	(1)	(1)	(1)
Neoplasms other than of the eyeball	123	66	57	0.9	0.9	0.9	(1)	(1)	(1)
Buphthalmos, hydrophthalmia, macrophthalmia	52	30	22	0.4	0.4	0.3	(1)	(1)	(1)
All other diseases of the eye	161	79	82	1.2	1.1	1.3	0.2	0.2	0.2
Combination of two or more diseases of the eye	451	226	225	3.3	3.1	3.5	4.3	4.1	4.5

[1] Not shown separately in 1910.

Of the several classes of eye disorders, females are affected to a larger extent than males by those of the conjunctiva, cornea, iris, and choroid, by glaucoma, and by disorders involving the crystalline lens. In the case of glaucoma the difference between the two sexes is notable, the proportion for females being 17.7 per cent and for males 10.7 per cent. The difference is also appreciable in the case of conjunctival diseases, the proportion for females being 16.9 per cent and for males 14.9 per cent. This situation seems to be due to the greater frequency with females of ophthalmia neonatorum, there being larger proportions for males attributed to trachoma and gonococcus conjunctivitis. As regards diseases of the cornea, the proportions are larger in the case of females only for keratitis and corneal opacities, while for corneal ulcer and staphyloma the proportions for males are greater. Larger proportions for males are shown in the case of diseases of the retina and of the optic nerve, progressive myopia, cancer and other neoplasms, and buphthalmos and allied disorders. The greatest excess is found in the case of atrophy of the optic nerve, the proportion for males here being 16.2 per cent, as against 8.8 per cent for females. The difference is also considerable with respect to retinal diseases, in practically all classes of which males have a considerably larger proportion. The only disorder having the same proportion for either sex is amaurosis and kindred eye troubles.

The reasons for the greater prevalence of some of these eye affections among one sex and of others among the other sex are not always easy to determine. Glaucoma and affections of the crystalline lens (cataract) may obtain to a greater degree among females, partly because females generally attain a higher age in life than do males, these diseases being especially operative in the advanced years of life. The higher proportion for males from atrophy of the optic nerve may be due to some extent to their greater liability to venereal diseases, especially syphilis, to which a certain amount of this disorder is due. This is doubtless the explanation also of the larger proportion for males from gonococcus conjunctivitis. The reason for the larger proportion for males from trachoma may lie in their wider opportunities for contact with this disease, which is a highly communicable one.

As compared with 1910, the year 1920 shows increases, though on the whole not great, in the proportions for diseases of the conjunctiva, except trachoma; diseases of the iris; diseases of the choroid; glaucoma; diseases of the retina; progressive myopia; and cancer and other neoplasms. In the case of the two last-named disorders the proportions have at least tripled. There are indicated decreases for diseases of the cornea, especially corneal ulcer; diseases of the optic nerve, especially atrophy of the optic nerve; diseases of the crystalline lens (cataract); and amaurosis and allied disorders. The respective increases or decreases for the several diseases are much the same for either sex as for both sexes together. The main differences are in the considerable increase for ophthalmia neonatorum and in the considerable decrease for cataract in the case of females.

The decreases found for certain diseases are undoubtedly due to better treatment of the eyes when they are under attack from such maladies, together with important preventive work, including better general care of the organ of vision. Trachoma in particular is undoubtedly decreasing before the present attacks leveled against it. As this is a disease mainly associated with the use of unclean appliances, especially lavatory appliances, the question of its control is largely one of education and sanitation. The active campaign against it now includes the establishment of special hospitals or clinics in regions where the disease is prevalent.

The reasons for the increases indicated are not fully known, though mainly the result of more exact classification in 1920; in part they are but the reflection of decreases for other diseases. The heavy increase for progressive myopia appears to be due, to some extent at least, to the increasing strain placed upon the eye, frequently amounting to actual abuse, especially when that organ is not functioning properly. Possibly not a little of this ill treatment occurs in vehicles of transportation, the growing use of which imposes an added burden upon the eye. The increase of blindness from cancer and other neoplasms may be attributed in some degree to the general increase of such affections in the United States, the affections of the eye being perhaps one symptom. An actual increase in the proportion for ophthalmia neonatorum seems hardly possible, especially in view of the determined efforts that have been put forth of recent years to combat it. Evidence from other sources is convincing that blindness from this disease is materially decreasing.[49]

Table 75 gives similar figures for the diseases of a more general character, or diseases other than specific affections of the eye, in the order of their relative occurrence.

TABLE 75.—BLIND POPULATION, BY SEX, REPORTING BLINDNESS AS DUE TO DISEASE OTHER THAN SPECIFIC AFFECTION OF THE EYE, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	NUMBER, 1920			PER CENT DISTRIBUTION					
				1920			1910		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Disease other than specific affection of the eye, total	5,623	2,936	2,687	100.0	100.0	100.0	100.0	100.0	100.0
Measles	797	421	376	14.2	14.3	14.0	18.0	17.5	18.7
Meningitis	526	253	273	9.4	8.6	10.2	13.1	11.1	15.6
Scarlet fever	416	215	201	7.4	7.3	7.5	11.4	11.0	11.9
Diseases of the head other than meningitis	384	211	173	6.8	7.2	6.4	13.7	14.0	13.4
Influenza (grippe)	282	142	140	5.0	4.8	5.2	8.0	6.1	10.4
Typhoid fever	253	157	96	4.5	5.3	3.6	8.2	9.3	6.8
Smallpox	235	133	102	4.2	4.5	3.8	8.5	9.6	7.1
Rheumatism	184	100	84	3.3	3.4	3.1	(1)	(1)	(1)
Syphilis	184	134	50	3.3	4.6	1.9	2.4	3.0	1.6
Other acute eruptions of the skin	165	68	97	2.9	2.3	3.6	(1)	(1)	(1)
Kidney disease (not otherwise specified)	140	65	75	2.5	2.2	2.8	(1)	(1)	(1)
Spinal trouble (not otherwise specified)	130	73	57	2.3	2.5	2.1	2.7	2.4	3.1
Diabetes	91	44	47	1.6	1.5	1.7	(1)	(1)	(1)
Puerperal fever	87	------	87	1.5	------	3.2	(1)	(1)	(1)
Bright's disease	77	37	40	1.4	1.3	1.5	(1)	(1)	(1)
Locomotor ataxia	68	63	5	1.2	2.1	0.2	3.1	4.9	0.8
Diphtheria	45	27	18	0.8	0.9	0.7	(1)	(1)	(1)
Tuberculosis	14	5	9	0.2	0.2	0.3	(1)	(1)	(1)
All other diseases, not specific affections of the eye	1,318	667	651	23.4	22.7	24.2	8.4	8.5	8.2
Combination of two or more diseases	227	121	106	4.0	4.1	3.9	2.5	2.6	2.3

[1] Not shown separately in 1910.

[49] In an increasing number of State laws and local health regulations there are required reports of cases of ophthalmia neonatorum occurring at birth or shortly thereafter; these provide for proper attention for cases not otherwise cared for and the use of a prophylactic at birth, this prophylactic sometimes being supplied free. In schools for the blind making report on the matter the proportion of pupils blind from this disease was 23.9 per cent in 1910–11 and 13.5 per cent in 1920–21. In certain cities no child becomes blind from this cause in the course of a whole year, or for an even longer period. (See Reports of National Committee for the Prevention of Blindness.)

Some of these diseases have greater proportions for males than for females, as follows: Measles, diseases of the head, typhoid fever, smallpox, rheumatism, syphilis, spinal trouble, locomotor ataxia, and diphtheria. In the case of locomotor ataxia the proportion is over ten times as large for males as for females and in the case of syphilis considerably over twice as large. Other general diseases showing greater proportions for females than for males are the following: Meningitis, scarlet fever, influenza (grippe), acute eruptions of the skin, kidney disease, diabetes, Bright's disease, and tuberculosis, and, of course, puerperal fever. The greater incidence of blindness for one sex or another from certain diseases may be regarded as largely in correspondence with its greater susceptibility to those diseases. In particular, the larger proportions for venereal diseases as a cause of blindness among males is an indication of their greater prevalence with that sex. In the main, though with a few important exceptions, the sex that shows a greater tendency toward blindness from a given disease is the sex that has the higher mortality rate from that disease.[50] Where this is not the case, the effects of a disease may be of a different character for the two sexes, in one proving fatal and in the other involving the destruction of vision as possibly one of several consequences.

Since 1910 there has been a decrease, in some cases a notable decrease, in the proportions for all the foregoing diseases except syphilis, and possibly for certain diseases not specifically enumerated in that year. In a few cases the decreases have been more marked for one sex than for the other. This decrease for most of the general diseases responsible for blindness is doubtless merely an indication of the general progress being made by medical science in the conquest of such diseases.

In Table 76 are given, for both sexes and for each sex separately, the figures for blindness resulting from accidents.

TABLE 76.—BLIND POPULATION, BY SEX, REPORTING BLINDNESS AS DUE TO ACCIDENT OR OTHER INJURY, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	NUMBER, 1920			PER CENT DISTRIBUTION					
				1920			1910		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Accident or other injury, total	5,913	4,889	1,024	100.0	100.0	100.0	100.0	100.0	100.0
Directly affecting the eye	3,152	2,750	402	53.3	56.2	39.3	66.7	67.9	60.6
From burns	113	90	23	1.9	1.8	2.2	4.1	3.8	5.5
From firearms	250	228	22	4.2	4.7	2.1	4.2	4.6	1.9
From cutting or piercing instruments	323	225	98	5.5	4.6	9.6	5.7	4.9	9.7
From explosives (dynamite, gunpowder, etc.)	797	777	20	13.5	15.9	2.0	18.3	21.5	1.4
From flying objects (other than in explosions)	380	343	37	6.4	7.0	3.6	8.9	9.3	6.6
From all other causes	1,178	981	197	19.9	20.1	19.2	22.6	20.3	34.5
From combination of causes	111	106	5	1.9	2.2	0.5	3.0	3.4	0.9
Not directly affecting the eye	511	377	134	8.6	7.7	13.1	8.4	7.7	12.2
From firearms	44	39	5	0.7	0.8	0.5	1.6	1.8	0.6
From falls	148	84	64	2.5	1.7	6.3	2.9	2.0	7.3
From all other causes	319	254	65	5.4	5.2	6.3	4.0	3.9	4.3
Part affected uncertain	2,239	1,754	485	37.9	35.9	47.4	24.8	24.4	27.2
From firearms	338	308	30	5.7	6.3	2.9	6.1	6.8	2.1
From falls	232	129	103	3.9	2.6	10.1	3.0	2.2	7.6
From all other causes	1,669	1,317	352	28.2	26.9	34.4	15.7	15.3	17.6
From combination of classes of causes	11	8	3	0.2	0.2	0.3	0.1	0.1	-----

[50] See Mortality Statistics of the Census Bureau for 1920 and later years.

Though accidents in general cause almost five times as much blindness among males as among females, as between different forms there may be higher proportions for one sex than for the other. With explosives the proportion is eight times as large, and with flying objects and with firearms twice as large, in the case of males as in the case of females. In the two first named there is attested the increased hazard to males in industry. With falls the proportion is four times as large, and with cutting or piercing instruments twice as large, in the case of females as in the case of males. With burns the proportion is also greater in the case of females. On the whole, the proportion is larger for males for accidents directly affecting the eye and larger for females as to those affecting it indirectly.

Since 1910 there have been increases with females from explosives and firearms and from falls. There have been decreases, however, for both sexes in blindness resulting from burns, firearms, explosives, flying objects, and cutting or piercing instruments, the decrease being most pronounced in burns. These decreases are in large part due to the present efforts to prevent accidents and to insure safety. It is evident, nevertheless, that this campaign has not as yet reduced all forms of injuries to the eye.

Table 77 shows comparative figures for other definitely reported causes.

TABLE 77.—BLIND POPULATION, BY SEX, REPORTING BLINDNESS AS DUE TO POISONING OR OTHER MISCELLANEOUS CAUSES, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	NUMBER, 1920			PER CENT DISTRIBUTION					
				1920			1910		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Poisoning and other miscellaneous causes, total	937	707	230	100.0	100.0	100.0	100.0	100.0	100.0
Poisoning	311	253	58	33.2	35.8	25.2	28.0	32.1	14.4
Alcoholic poisoning (other than wood alcohol)	19	17	2	2.0	2.4	0.9	(1)	(1)	(1)
Tobacco poisoning	20	19	1	2.1	2.7	0.4	(1)	(1)	(1)
Wood alcohol poisoning	51	49	2	5.4	6.9	0.9	(1)	(1)	(1)
Chronic lead poisoning	25	24	1	2.7	3.4	0.4	(1)	(1)	(1)
Other chronic occupational poisoning	15	15	------	1.6	2.1	------	(1)	(1)	(1)
All other	181	129	52	19.3	18.2	22.6	(1)	(1)	(1)
Malformations	142	77	65	15.2	10.9	28.3	16.1	11.1	32.2
Of the crystalline lens	5	4	1	0.5	0.6	0.4	(1)	(1)	(1)
Albinism	24	10	14	2.6	1.4	6.1	(1)	(1)	(1)
All other	113	63	50	12.1	8.9	21.7	(1)	(1)	(1)
Foreign substances in the eye	431	345	86	46.0	48.8	37.4	54.4	55.7	50.0
Acids and other substances of a chemically destructive nature	264	217	47	28.2	30.7	20.4	26.9	26.4	28.9
Dust and other foreign particles	167	128	39	17.8	18.1	17.0	27.5	29.4	21.1
All other definitely reported causes	53	32	21	5.7	4.5	9.1	1.6	1.0	3.3

[1] Not shown separately in 1910.

The proportion of blindness is greater for males than for females from foreign substances in the eye, especially from acids and like substances, this being due to the greater exposure of males in industrial undertakings. The proportion is several times greater for males as to blindness from most of the forms of poisoning, a condition due, of course, to the circumstance that males are more addicted to the use of alcohol and tobacco, and that males engaged in industrial processes

are much more exposed to the toxic action of various substances. The proportion for females is greater as regards malformations, a condition which is doubtless largely an offset to the smaller proportions for this sex in the other two classes.

The proportions of blindness, both from foreign substances in the eye and from malformations, show a slight decrease from 1910, though there is an increase with males from acids and like substances. There is a certain increase in blindness resulting generally from poisoning.

In Table 78 are figures with respect to causes indefinitely or inaccurately reported.

TABLE 78.—BLIND POPULATION, BY SEX, REPORTING CAUSE OF BLINDNESS INDEFINITELY OR INACCURATELY, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	NUMBER, 1920			PER CENT DISTRIBUTION					
				1920			1910		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Causes indefinitely or inaccurately reported, total	9,119	4,954	4,165	100.0	100.0	100.0	100.0	100.0	100.0
Congenital (cause not stated)	2,635	1,472	1,163	28.9	29.7	27.9	15.4	15.0	15.9
Old age	770	347	423	8.4	7.0	10.2	6.4	4.9	8.1
Neuralgia	548	204	344	6.0	4.1	8.3	7.3	4.9	10.0
Exposure to heat	507	393	114	5.6	7.9	2.7	4.2	5.3	3.0
Sore eyes	497	239	258	5.5	4.8	6.2	8.9	8.7	9.1
Strained eyes	226	126	100	2.5	2.5	2.4	2.2	2.2	2.2
Military service	223	221	2	2.4	4.5	(1)	5.4	10.1	------
Medical malpractice	220	100	120	2.4	2.0	2.9	(2)	(2)	(2)
Scrofula	212	89	123	2.3	1.8	3.0	2.3	1.9	2.6
Paralysis	187	111	76	2.1	2.2	1.8	1.9	2.1	1.7
Wrong medicine or treatment	176	89	87	1.9	1.8	2.1	(2)	(2)	(2)
Colds	154	71	83	1.7	1.4	2.0	1.8	1.6	2.1
Catarrh	121	66	55	1.3	1.3	1.3	1.5	1.3	1.6
Change of life (menopause)	107	-------	107	1.2	-------	2.6	(2)	-------	(2)
Malaria	38	22	16	0.4	0.4	0.4	(2)	(2)	(2)
Electric light	32	26	6	0.4	0.5	0.1	(2)	(2)	(2)
Exposure to cold	31	26	5	0.3	0.5	0.1	(2)	(2)	(2)
All other	2,435	1,352	1,083	26.7	27.3	26.0	42.7	42.0	43.5

[1] Less than one-tenth of 1 per cent.

[2] Not shown separately in 1910.

Excess proportions are found for males in the case of congenital blindness, exposure to heat, strained eyes, military service, paralysis, electric light, and exposure to cold. Some of these comparisons indicate plainly occupational effects. Excess proportions are found for females in the case of old age, neuralgia, sore eyes, medical malpractice, scrofula, wrong medicine or treatment, colds, and change of life (menopause). Some of these causes are associated with advanced life, a period attained relatively more often by females than by males. With catarrh and malaria the proportions are the same for the two sexes.

Since 1910 there have been decreases for neuralgia, sore eyes, military service, colds, catarrh, and possibly certain disorders not separately indicated in 1910. There are also decreases, probably insignificant, for males in the case of scrofula and for females in the case of exposure to heat. The apparent decline in the case of blindness from military service is doubtless simply due to better classification in 1910. The remaining eye troubles either have the same proportions or show increases over 1910; but in most instances it is believed that this is simply the reflection of decreases for other affections, or the result of differences in classifica-

tion at the two census periods, and that it does not mean an actual increase with respect to such disorders as causes of blindness.

The whole question of the reduction of blindness hinges upon the extent to which the several causes responsible for it may be diminished. How far actual reduction is proceeding may be indicated by the distribution of blindness among particular causes over a period of time sufficiently long for comparisons. By ascertaining which causes are showing an increase in their proportions of blindness and which are showing a decrease may be discovered those causes which are proving more subject and those which are proving less subject to measures of control. Thus may be learned to what extent we are in the way of arresting or preventing blindness. Unfortunately, for the purpose of making comparisons with previous years, there are handicaps in two particulars. In the first place, no statistics are available further back than 1890, while those for 1900 are not satisfactory on account of the differences in method of classification mentioned previously. (See p. 8.) In the second place, only a limited number of diseases are reported in such a manner that they can be compared with any considerable degree of trustworthiness.

In Table 79 are given the number and the percentage distribution for certain causes of blindness, generally the leading causes reported, for the years 1920, 1910, and 1890.

TABLE 79.—BLIND POPULATION, BY REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920, 1910, AND 1890

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	BLIND POPULATION REPRESENTED IN RETURNS AS TO CAUSE					
	1920		1910		1890	
	Number	Per cent distribution	Number	Per cent distribution	Number	Per cent distribution
Total	40,913		29,242		50,411	
Cause reported	35,788	100.0	26,167	100.0	35,955	100.0
Accident or other injury [1]	5,913	16.5	3,942	15.1	7,292	20.3
Brain disease [2]	910	2.5	719	2.7	2,366	6.6
Cataract	4,896	13.7	3,267	12.5	4,875	13.6
Glaucoma	1,932	5.4	989	3.8	209	0.6
Measles	797	2.2	483	1.8	889	2.5
Scarlet fever	416	1.2	305	1.2	556	1.5
Smallpox	235	0.7	227	0.9	448	1.2
All other	20,689	57.8	16,235	62.0	19,320	53.7
Cause unknown or not reported	5,125		3,075		14,456	

[1] Including sympathetic ophthalmia.
[2] Comprises for 1920 and 1910 all persons reporting blindness as due to meningitis or "other diseases of the head."

The only considerable decreases found are in the case of brain disease, which includes meningitis and a few allied diseases, the proportion in 1920 being much less than one-half what it was in 1890; smallpox, which shows a steady decline; and scarlet fever, though this shows no decline since 1910. Accidents show a decline since 1890, but some increase since 1910. The same is true of measles. The diseases showing decreases are all general diseases, the decreases for them being due largely to improved medical treatment for diseases of this character and better control of sanitary conditions in general. The decrease for brain disease may be ascribed in no small part to changed classification, some cases of

this disease being now grouped with certain other disorders, especially atrophy of the optic nerve.

Conversely, glaucoma registers a very great increase, the proportion in 1920 being nine times that for 1890 and about one and one-half times that for 1910. It may be doubted, however, that the actual increase can be anything like this. To the increase in the number of the aged in the general population, among whom glaucoma falls with particular frequency, is attributable some of the increase. Another factor without doubt lies in the better and fuller reporting at present as to this disease. Cataract on the whole shows but little change during the period in question, which in effect really means a proportionate decrease, in view of the general increase in the old population. In the case of accidents the apparent increase from 1910 to 1920 may be due in some part to enlarged industrial activities in that period, with consequent increased hazard to the eyes. During this time, on the other hand, there has been greater insistence in industry on care as to the eye and wider adoption of safeguards. So far as there may be an increase at the present time of affections of a nervous order or resulting from nervous strain or intensive labor, there may be corresponding effects in the eye, as yet impossible to measure. To some extent, of course, increased proportions for some causes are but reflections of decreased proportions for others.

Since 1900 there has been on the whole a material decline in the mortality rate for the general diseases causing blindness, with the exception of venereal diseases. In the registration area of the United States, as constituted in each year, the number of deaths per 100,000 of population in 1900, 1910, and 1920, respectively, for the leading diseases of this character was as follows: Measles, 12.5, 12.3, and 8.8; meningitis,[51] 40.9, 14.2, and 6; scarlet fever, 10.2, 11.6, and 4.6; influenza, 22.9, 14.4, and 11.5 (1921); typhoid fever, 35.9, 23.5, and 7.8; smallpox, 1.9, 0.4, and 0.6; rheumatism, 9.5, 6.2, and 3.8; syphilis, 3.4, 6, and 9.1; and accidents, 28.6, 84.9, and 71.4. Just how far the reduction in the rate for blindness from the different diseases is keeping pace with the reduction in the mortality rate we do not fully know.[52]

Geographic divisions.—In Table 80 are shown, for the several geographic divisions of the country, the number and the percentage distribution of the blind according to the leading causes of blindness, in the order of their relative importance in the whole country.

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[51] Including cerebrospinal fever.

[52] In an investigation in certain schools for the blind of the causes of blindness as reported by their pupils so far as record is available, up to 1918, decreases, on the whole, are found in the case of general diseases (including meningitis, smallpox, scarlet fever, measles, typhoid fever, colds, and scrofula), accidents, and glaucoma; increases, on the whole, in the case of atrophy of the optic nerve and keratitis; and little change in the case of cataract, trachoma, ophthalmia neonatorum, retinitis, and choroiditis. With general diseases there has been a steady decline, proportions in some schools for certain of them having become nil of late years. In an investigation of the proportion of injuries to the eye as reported by departments of labor, industrial accident boards, and similar bodies in certain States, little change is found of recent years. Loss of sight incurred in Independence Day and other celebrations is being greatly reduced. (See Harry Best, The Blind: Their Condition and the Work Being Done for Them in the United States, 1919, pp. 227, 241.)

TABLE 80.—BLIND POPULATION, BY REPORTED CAUSE OF BLINDNESS, BY GEOGRAPHIC DIVISIONS: 1920

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	United States	GEOGRAPHIC DIVISIONS								
		New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
	NUMBER									
Total	40,913	4,184	7,807	10,253	4,881	4,594	3,371	2,716	1,400	1,707
Cause reported	35,788	3,668	6,865	9,159	4,334	3,759	2,909	2,357	1,226	1,511
Definitely reported causes	26,333	2,915	5,438	6,942	3,231	2,469	1,844	1,433	878	1,183
Cataract	4,896	579	951	1,388	570	457	337	270	155	189
Glaucoma	1,932	289	486	487	216	140	84	86	47	97
Atrophy of the optic nerve	1,756	204	351	545	242	106	89	77	47	95
Ophthalmia neonatorum	1,198	104	235	353	108	172	96	62	30	38
Trachoma (granular eyelids)	555	9	30	158	115	25	74	63	52	29
Diseases of the retina	497	79	128	121	55	25	11	13	23	42
Corneal ulcer	264	50	31	67	42	21	19	21	3	10
Cancer and other neoplasms	247	29	49	67	29	30	12	10	7	14
Diseases of the iris	240	45	54	66	23	21	5	2	8	16
Measles	797	57	103	217	156	83	79	61	17	24
Meningitis	526	68	103	103	63	60	50	55	11	13
Scarlet fever	416	53	136	100	52	24	13	10	13	15
Kidney disease and diabetes	308	39	60	81	32	33	18	17	10	18
Influenza (grippe)	282	21	48	85	36	23	26	17	10	16
Typhoid fever	253	8	39	53	44	36	30	24	5	14
Syphilis and locomotor ataxia	252	30	50	79	28	21	15	8	3	18
Smallpox	235	6	38	57	33	11	15	26	41	8
Accidents	5,913	554	1,332	1,381	689	641	449	324	228	315
Explosives (dynamite, gunpowder, etc.)	797	76	155	140	103	88	57	33	85	60
Firearms	632	26	84	136	66	120	105	57	15	23
Falls	445	56	119	101	57	39	21	11	9	32
Flying objects (not from explosions)	380	26	95	97	45	42	14	20	17	24
Cutting or piercing instruments	335	33	53	68	50	47	37	31	7	9
Burns	113	7	24	22	6	22	9	13	1	9
All other accidental injuries	3,211	330	802	817	362	283	206	159	94	158
Poisoning	311	39	57	76	37	31	27	20	10	14
Foreign substances in the eye	431	40	89	95	60	51	26	34	22	14
All other definitely reported causes	5,024	612	1,068	1,363	601	458	369	233	136	184
Indefinitely or inaccurately reported causes	9,119	731	1,356	2,115	1,062	1,273	1,041	893	335	313
Congenital (cause not stated)	2,635	205	401	565	276	505	284	213	75	111
Neuralgia	548	9	30	87	77	76	113	134	10	12
Exposure to heat	507	26	52	143	65	69	76	46	19	11
Sore eyes	497	21	26	85	93	50	89	109	15	9
All other	4,932	470	847	1,235	551	573	479	391	216	170
Combination of different classes of causes	336	22	71	102	41	17	24	31	13	15
Cause unknown or not reported	5,125	516	942	1,094	547	835	462	359	174	196

TABLE 80.—BLIND POPULATION, BY REPORTED CAUSE OF BLINDNESS, BY GEOGRAPHIC DIVISIONS: 1920—Continued

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	United States	GEOGRAPHIC DIVISIONS								
		New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
	PER CENT DISTRIBUTION									
Cause reported	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Definitely reported causes	73.6	79.5	79.2	75.8	74.6	65.7	63.4	60.8	71.6	78.3
Cataract	13.7	15.8	13.9	15.2	13.2	12.2	11.6	11.5	12.6	12.5
Glaucoma	5.4	7.9	7.1	5.3	5.0	3.7	2.9	3.6	3.8	6.4
Atrophy of the optic nerve	4.9	5.6	5.1	6.0	5.6	2.8	3.1	3.3	3.8	6.3
Ophthalmia neonatorum	3.3	2.8	3.4	3.9	2.5	4.6	3.3	2.6	2.4	2.5
Trachoma (granular eyelids)	1.6	0.2	0.4	1.7	2.7	0.7	2.5	2.7	4.2	1.9
Diseases of the retina	1.4	2.2	1.9	1.3	1.3	0.7	0.4	0.6	1.5	2.8
Corneal ulcer	0.7	1.4	0.5	0.7	1.0	0.6	0.7	0.9	0.2	0.7
Cancer and other neoplasms	0.7	0.8	0.7	0.7	0.7	0.8	0.4	0.4	0.6	0.9
Diseases of the iris	0.7	1.2	0.8	0.7	0.5	0.6	0.2	0.1	0.7	1.1
Measles	2.2	1.6	1.5	2.4	3.6	2.2	2.7	2.6	1.4	1.6
Meningitis	1.5	1.9	1.5	1.1	1.5	1.6	1.7	2.3	0.9	0.9
Scarlet fever	1.2	1.4	2.0	1.1	1.2	0.6	0.4	0.4	1.1	1.0
Kidney disease and diabetes	0.9	1.1	0.9	0.9	0.7	0.9	0.6	0.7	0.8	1.2
Influenza (grippe)	0.8	0.6	0.7	0.9	0.8	0.6	0.9	0.7	0.8	1.1
Typhoid fever	0.7	0.2	0.6	0.6	1.0	1.0	1.0	1.0	0.4	0.9
Syphilis and locomotor ataxia	0.7	0.8	0.7	0.9	0.6	0.6	0.5	0.3	0.2	1.2
Smallpox	0.7	0.2	0.6	0.6	0.8	0.3	0.5	1.1	3.3	0.5
Accidents	16.5	15.1	19.4	15.1	15.9	17.1	15.4	13.7	18.6	20.8
Explosives (dynamite, gunpowder, etc	2.2	2.1	2.3	1.5	2.4	2.3	2.0	1.4	6.9	4.0
Firearms	1.8	0.7	1.2	1.5	1.5	3.2	3.6	2.4	1.2	1.5
Falls	1.2	1.5	1.7	1.1	1.3	1.0	0.7	0.5	0.7	2.1
Flying objects (not from explosions)	1.1	0.7	1.4	1.1	1.0	1.1	0.5	0.8	1.4	1.6
Cutting or piercing instruments	0.9	0.9	0.8	0.7	1.2	1.3	1.3	1.3	0.6	0.6
Burns	0.3	0.2	0.3	0.2	0.1	0.6	0.3	0.6	0.1	0.6
All other accidental injuries	9.0	9.0	11.7	8.9	8.4	7.5	7.1	6.7	7.7	10.5
Poisoning	0.9	1.1	0.8	0.8	0.9	0.8	0.9	0.8	0.8	0.9
Foreign substances in the eye	1.2	1.1	1.3	1.0	1.4	1.4	0.9	1.4	1.8	0.9
All other definitely reported causes	14.0	16.7	15.6	14.9	13.9	12.2	12.7	9.9	11.1	12.2
Indefinitely or inaccurately reported causes	25.5	19.9	19.8	23.1	24.5	33.9	35.8	37.9	27.3	20.7
Congenital (cause not stated)	7.4	5.6	5.8	6.2	6.4	13.4	9.8	9.0	6.1	7.3
Neuralgia	1.5	0.2	0.4	0.9	1.8	2.0	3.9	5.7	0.8	0.8
Exposure to heat	1.4	0.7	0.8	1.6	1.5	1.8	2.6	2.0	1.5	0.7
Sore eyes	1.4	0.6	0.4	0.9	2.1	1.3	3.1	4.6	1.2	0.6
All other	13.8	12.8	12.3	13.5	12.7	15.2	16.5	16.6	17.6	11.3
Combination of different classes of causes	0.9	0.6	1.0	1.1	0.9	0.5	0.8	1.3	1.1	1.0

In some measure the differences among the several divisions reflect the manner in which report was made as to the causes of blindness, some sections of the country rendering fuller and more accurate schedules than others. The relatively low proportions for specific causes in the South are to a large extent owing to this factor. Cataract has a proportion above the normal in the New England and East North Central divisions, a condition due in considerable degree to the high proportion of old people in those divisions, among whom cataract falls relatively heavily. Glaucoma is highest in the New England and Middle Atlantic divisions, to some extent for the reason just given, and also by reason of the relatively greater number of females here, this sex being more subject to this disease than males. The very low proportions for the South are in part due to the fact that much of glaucoma is reported as neuralgia, often being in fact the same disorder. The proportion for glaucoma is very high in the Pacific division; and if neuralgia is added, also in the West South Central. The proportion is very low for both of these diseases in the Mountain division. Atrophy of the optic nerve is at its highest proportions in the Pacific and East North Central divisions. In the former it may be accounted for in some part by the relatively high proportion of males here, the disease being more frequent among males than among females. Ophthalmia neonatorum has its greatest relative proportions in the South Atlantic and East North Central divisions. To obtain complete figures for trachoma, there should be added the figures for "sore eyes," the same or a kindred affection, and when this is done the highest proportions are found in the West South Central, East South Central, Mountain, and West North Central divisions. In certain parts of the South, especially in mountainous sections, the disease has been strongly endemic. The high proportions for trachoma in the Mountain division are brought about by its great prevalence among the Indians in that region. The New England and Middle Atlantic divisions seem to be relatively free from trachoma. Retinal diseases and cancer appear to have their greatest proportions in the Pacific division, and corneal ulcer and diseases of the iris in the New England.

Among general diseases, measles has its greatest proportion in the West North Central division; meningitis, in the West South Central; scarlet fever, in the Middle Atlantic; and kidney disease and diabetes, influenza, and syphilis and locomotor ataxia, in the Pacific. Typhoid fever as a cause of blindness seems especially to prevail in the West North Central and the three southern divisions. Smallpox has much the highest proportion in the Mountain division, doubtless because of the presence there of a considerable Mexican and Indian population, among whom this disease is relatively frequent. Only to a limited extent do the proportions reflect mortality rates in different areas.

With respect to blindness from accidents the highest proportions, generally, are in the Pacific, Middle Atlantic, and Mountain divisions, in large part because of hazardous industrial operations, including mining, in these sections. The highest proportion for explosives is in the Mountain division; for falls and flying objects, in the Pacific division; and for firearms and cutting or piercing instruments, in the three southern divisions. Blindness from poisoning has the highest proportion in the New England division; from foreign substances in the eye, in the Mountain; and from exposure to heat, in the East South Central. Blindness specified as congenital is most frequently reported from the southern divisions.

Race and nativity.—In Table 81 are given the number of the blind, with the percentage distribution by cause, for 1920 and 1910, classified according to race and color groupings.

TABLE 81.—BLIND POPULATION, BY RACE, NATIVITY, AND REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	NUMBER, 1920					
	All classes [1]	White			Negro	Indian
		Total	Native	Foreign-born		
Total	40,913	36,640	30,313	6,327	3,936	308
Cause reported	35,788	32,383	26,928	5,455	3,119	262
Definitely reported causes	26,333	24,196	19,933	4,263	1,949	170
Cataract	4,896	4,469	3,412	1,057	411	14
Glaucoma	1,932	1,875	1,526	349	55	2
Atrophy of the optic nerve	1,756	1,635	1,375	260	116	5
Ophthalmia neonatorum	1,198	1,131	1,096	35	60	7
Trachoma (granular eyelids)	555	485	454	31	12	57
Diseases of the retina	497	483	387	96	9	4
Corneal ulcer	264	248	224	24	14	2
Cancer and other neoplasms	247	237	198	39	10	-
Diseases of the iris	240	223	205	18	17	-
Measles	797	739	677	62	51	7
Meningitis	526	482	470	12	44	-
Scarlet fever	416	406	366	40	10	-
Kidney disease and diabetes	308	286	237	49	22	-
Influenza (grippe)	282	252	207	45	27	2
Typhoid fever	253	223	188	35	28	2
Syphilis and locomotor ataxia	252	220	179	41	26	5
Smallpox	235	212	172	40	18	4
Accidents	5,913	5,337	4,172	1,165	543	28
Explosives (dynamite, gunpowder, etc.)	797	746	534	212	49	2
Firearms	632	482	438	44	149	-
Falls	445	408	321	87	34	3
Flying objects (not from explosions)	380	354	270	84	22	4
Cutting or piercing instruments	335	321	292	29	11	3
Burns	113	96	72	24	17	-
All other accidental injuries	3,211	2,930	2,245	685	261	16
Poisoning	311	276	211	65	32	2
Foreign substances in the eye	431	351	269	82	74	5
All other definitely reported causes	5,024	4,626	3,908	718	370	24
Indefinitely or inaccurately reported causes	9,119	7,874	6,736	1,138	1,148	92
Congenital (cause not stated)	2,635	2,392	2,313	79	232	9
Neuralgia	548	473	443	30	68	7
Exposure to heat	507	366	291	75	139	2
Sore eyes	497	408	384	24	60	29
All other	4,932	4,235	3,305	930	649	45
Combination of different classes of causes	336	313	259	54	22	-
Cause unknown or not reported	5,125	4,257	3,385	872	817	46

See footnotes at end of table.

TABLE 81.—BLIND POPULATION, BY RACE, NATIVITY, AND REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920—Continued

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	PER CENT DISTRIBUTION											
	1920						1910					
	All classes [1]	White			Negro	Indian	All classes	White			Negro	Other colored [2]
		Total	Native	Foreign-born				Total	Native	Foreign-born		
Cause reported	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Definitely reported causes	73.6	74.7	74.0	78.1	62.5	64.9	58.6	60.7	60.2	63.1	44.1	37.6
Cataract	13.7	13.8	12.7	19.4	13.2	5.3	12.5	12.6	11.8	16.2	11.6	6.8
Glaucoma	5.4	5.8	5.7	6.4	1.8	0.8	3.8	4.2	4.0	4.9	1.1	-----
Atrophy of the optic nerve	4.9	5.0	5.1	4.8	3.7	1.9	6.9	7.3	7.2	7.8	3.9	1.0
Ophthalmia neonatorum	3.3	3.5	4.1	0.6	1.9	2.7	2.2	2.4	2.8	0.7	0.7	2.0
Trachoma (granular eyelids)	1.6	1.5	1.7	0.6	0.4	21.8	1.7	1.8	2.1	0.6	0.3	7.8
Diseases of the retina	1.4	1.5	1.4	1.8	0.3	1.5	0.7	0.8	0.8	0.9	0.1	-----
Corneal ulcer	0.7	0.8	0.8	0.4	0.4	0.8	0.9	0.9	1.0	0.7	0.3	1.0
Cancer and other neoplasms	0.7	0.7	0.7	0.7	0.3	-----	0.2	0.2	0.2	0.2	0.1	-----
Diseases of the iris	0.7	0.7	0.8	0.3	0.5	-----	0.5	0.6	0.6	0.4	0.3	-----
Measles	2.2	2.3	2.5	1.1	1.6	2.7	1.8	1.9	2.2	0.8	1.6	0.5
Meningitis	1.5	1.5	1.7	0.2	1.4	-----	1.3	1.4	1.6	0.4	1.3	-----
Scarlet fever	1.2	1.3	1.4	0.7	0.3	-----	1.2	1.3	1.4	0.8	0.2	-----
Kidney disease and diabetes	0.9	0.9	0.9	0.9	0.7	-----	0.5	0.5	0.6	0.5	0.5	-----
Influenza (grippe)	0.8	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	-----
Typhoid fever	0.7	0.7	0.7	0.6	0.9	0.8	0.8	0.9	0.8	0.9	0.7	0.5
Syphilis and locomotor ataxia	0.7	0.7	0.7	0.8	0.8	1.9	0.6	0.5	0.5	0.7	0.6	2.0
Smallpox	0.7	0.7	0.6	0.7	0.6	1.5	0.9	0.9	0.8	1.0	0.7	4.4
Accidents	16.5	16.5	15.5	21.4	17.4	10.7	15.1	15.1	14.2	19.3	15.2	6.3
Explosives (dynamite, gunpowder, etc.)	2.2	2.3	2.0	3.9	1.6	0.8	2.8	2.9	2.5	4.6	1.7	0.5
Firearms	1.8	1.5	1.6	0.8	4.8	-----	1.8	1.5	1.6	0.8	4.3	0.5
Falls	1.2	1.3	1.2	1.6	1.1	1.1	1.0	1.0	0.9	1.6	0.5	-----
Flying objects (not from explosions)	1.1	1.1	1.0	1.5	0.7	1.5	1.3	1.3	1.1	2.3	1.4	1.0
Cutting or piercing instruments	0.9	1.0	1.1	0.5	0.4	1.1	0.9	0.9	1.1	0.2	0.4	1.0
Burns	0.3	0.3	0.3	0.4	0.5	-----	0.6	0.6	0.5	0.7	1.1	0.5
All other accidental injuries	9.0	9.0	8.3	12.6	8.4	6.1	6.7	6.9	6.4	8.9	5.8	2.9
Poisoning	0.9	0.9	0.8	1.2	1.0	0.8	0.4	0.4	0.4	0.7	0.2	1.0
Foreign substances in the eye	1.2	1.1	1.0	1.5	2.4	1.9	0.8	0.7	0.6	1.1	1.9	2.9
All other definitely reported causes	14.0	14.3	14.5	13.2	11.9	9.2	5.1	5.5	5.8	3.8	2.2	1.5
Indefinitely or inaccurately reported causes	25.5	24.3	25.0	20.9	36.8	35.1	39.7	37.5	38.1	35.0	54.6	60.5
Congenital (cause not stated)	7.4	7.4	8.6	1.4	7.4	3.4	6.1	6.3	7.4	1.5	5.1	3.9
Neuralgia	1.5	1.5	1.6	0.5	2.2	2.7	2.9	2.8	3.3	1.0	3.3	2.9
Exposure to heat	1.4	1.1	1.1	1.4	4.5	0.8	1.7	1.1	1.0	1.3	6.3	1.0
Sore eyes	1.4	1.3	1.4	0.4	1.9	11.1	3.5	3.4	3.7	2.1	4.2	11.2
All other	13.8	13.1	12.3	17.0	20.8	17.2	25.5	24.0	22.8	29.2	35.8	41.5
Combination of different classes of causes	0.9	1.0	1.0	1.0	0.7	-----	1.7	1.7	1.7	1.9	1.3	2.0

[1] Includes "other colored," chiefly Chinese and Japanese.
[2] Indians not separately shown in 1910.

The proportions among the colored for specific causes are in general less than they should be, by reason of a relatively greater proportion among them reporting the cause of blindness indefinitely or inaccurately. Cataract prevails to a relatively high degree among foreign-born whites, in large part because of the greater proportions of them in advanced life, the period when this disease is most in operation. This disease has very low proportions among the Indians. Glaucoma

and atrophy of the optic nerve are causes of blindness much more frequently among whites than among colored. The proportion for glaucoma is more than three times as large in the case of both native and foreign-born whites than in the case of Negroes, and the disparity is even greater as compared with the Indians. If neuralgia is included with glaucoma the differences are lessened. As has been previously stated, in many cases where glaucoma is the actual cause, neuralgia is the cause ascribed on the schedule; these incorrect returns, moreover, were more frequently made by Negroes and Indians than by whites. Ophthalmia neonatorum reaches its greatest extent among native whites, and its least among foreign born. The low proportion for the latter is explained by the fact that very few in this group become blind in early childhood, the time of life when ophthalmia neonatorum operates. Trachoma is excessive among the Indian population, being responsible (together with "sore eyes") for approximately one-third of all their blindness. Trachoma is least among Negroes, who seem to be but little susceptible to this disease.[53] The proportion is also relatively small among foreign-born whites, with whom in the past it has been rather more common. The present low rate is probably proof of the effective work which the immigration authorities have done of recent years in barring prospective immigrants suffering from it. There are also generally better facilities at present for treating the disease, and particularly in the cities, where this class so largely lives. The relatively low proportions among the foreign born for other diseases, both specific eye affections and general disorders, are in large part merely the reflection of the relatively high proportion for accidents among them. There is, however, the additional factor of the greater proportion of foreign-born whites in adult life, when the "children's diseases" have largely ceased to operate.

Certain general affections, especially scarlet fever and measles, seem to occasion blindness to a much less degree among Negroes than among whites. This may possibly be due to a greater power of resistance to contagion with respect to such diseases, thereby lessening the risk of blindness. Among Indians blindness from syphilis and locomotor ataxia and from smallpox is notably above the average.

Because of their extensive employment in hazardous industries, including mining, the foreign born are in a notable degree subject to risk of blindness as well as other accidents. Industrial accidents involving the eye, as shown in Table 73, are most likely to occur through explosives, flying objects, and falls, besides poisoning, which is often an occupational disease; in all of these forms of accidents causing blindness the foreign born are found to have relatively high proportions. Blindness from the improper use of firearms, burns, and foreign substances in the eye occurs most frequently among Negroes, these factors being sufficient to make the proportion for accidents the highest for any group except the foreign born. Blindness results more often from cutting or piercing instruments with native whites and Indians. The proportion for accidents in general is lowest of all for Indians.

Since 1910 the changes in the relative proportions for the different causes of blindness have been much the same for the several race and nativity groups as they have been for the blind as a whole. The outstanding difference for any one group is in the case of Indians [54] with respect to trachoma. The proportion here has almost trebled in this 10-year period. On the other hand, the proportion for smallpox is reduced among Indians much more than with other classes.

[53] This is also the observation of various health authorities and of medical writers generally.

[54] Indians returning special schedules were not shown separately in 1910, but were included in the group "All other." Indians, however, comprised the bulk of that group, as shown in Table 10, p. 26, so that comparison appears to be permissible.

With the foreign-born whites the increase for cataract has been slightly greater than with other groups, and the decrease for atrophy of the optic nerve greater. For ophthalmia neonatorum there has been a decrease with this group not found in the others.

Age when vision was lost.—In Table 82 are shown for the main causes of blindness the number and the percentage distribution according to the age of the occurrence of blindness, together with the percentage distribution, for each such age, according to cause.

TABLE 82.—BLIND POPULATION, BY AGE WHEN VISION WAS LOST AND REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	Total [1]	Born blind	LOSING VISION AT AGE OF—					
			Less than 5 years	5 to 9 years	10 to 19 years	20 to 44 years	45 to 64 years	65 years or over [2]
	NUMBER							
Total	40,913	3,978	4,362	2,478	3,259	8,445	8,713	7,853
Cause reported	35,788	3,868	3,923	2,219	2,911	7,530	7,525	6,671
Definitely reported causes	26,333	1,196	3,127	1,872	2,395	6,034	5,898	4,898
Cataract	4,896	400	181	100	147	449	1,169	2,274
Glaucoma	1,932	14	27	11	54	259	898	621
Atrophy of the optic nerve	1,756	112	79	80	120	577	514	227
Ophthalmia neonatorum	1,198	228	825	10	11	3	-------	-------
Trachoma (granular eyelids)	555	3	37	43	90	164	130	53
Diseases of the retina	497	13	25	13	38	134	159	97
Corneal ulcer	264	8	56	12	25	71	53	30
Cancer and other neoplasms	247	3	24	21	39	76	40	40
Diseases of the iris	240	3	3	9	16	96	75	32
Measles	797	2	197	134	136	171	83	47
Meningitis	526	1	203	151	97	46	9	2
Scarlet fever	416	1	159	111	66	49	13	6
Kidney disease and diabetes	308	6	9	2	14	57	122	93
Influenza (grippe)	282	-------	23	12	20	59	98	69
Typhoid fever	253	-------	44	34	48	77	28	18
Syphilis and locomotor ataxia	252	15	11	16	16	106	67	9
Smallpox	235	-------	72	45	33	32	32	17
Accidents	5,913	25	340	655	923	2,181	1,156	482
Explosives (dynamite, gunpowder, etc.)	797	-------	8	45	100	486	125	20
Firearms	632	-------	9	44	194	294	53	23
Falls	445	-------	47	60	48	102	105	70
Flying objects (not from explosions)	380	-------	11	32	49	120	104	49
Cutting or piercing instruments	335	-------	78	109	54	50	23	14
Burns	113	-------	16	2	9	42	30	13
All other accidental injuries	3,211	25	171	363	469	1,087	716	293
Poisoning	311	1	21	16	26	116	89	36
Foreign substances in the eye	431	-------	28	28	50	159	115	43
All other definitely reported causes	5,024	361	763	369	426	1,152	1,048	702
Indefinitely or inaccurately reported causes	9,119	2,672	782	326	482	1,411	1,535	1,693
Congenital (cause not stated)	2,635	2,635	-------	-------	-------	-------	-------	-------
Neuralgia	548	-------	4	11	34	166	209	117
Exposure to heat	507	-------	9	6	17	162	197	103
Sore eyes	497	3	139	61	78	111	60	29
All other	4,932	34	630	248	353	972	1,069	1,444
Combination of different classes of causes	336	-------	14	21	34	85	92	80
Cause unknown or not reported	5,125	110	439	259	348	915	1,188	1,182

See footnotes at end of table.

TABLE 82.—BLIND POPULATION, BY AGE WHEN VISION WAS LOST AND REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920—Con.

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	Total [1]	Born blind	LOSING VISION AT AGE OF— Less than 5 years	5 to 9 years	10 to 19 years	20 to 44 years	45 to 64 years	65 years or over [2]
	PER CENT DISTRIBUTION							
Cause reported	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Definitely reported causes	73.6	30.9	79.7	84.4	82.3	80.1	78.4	73.4
Cataract	13.7	10.3	4.6	4.5	5.0	6.0	15.5	34.1
Glaucoma	5.4	0.4	0.7	0.5	1.9	3.4	11.9	9.3
Atrophy of the optic nerve	4.9	2.9	2.0	3.6	4.1	7.7	6.8	3.4
Ophthalmia neonatorum	3.3	5.9	21.0	0.5	0.4	[3]	-------	-------
Trachoma (granular eyelids)	1.6	0.1	0.9	1.9	3.1	2.2	1.7	0.8
Diseases of the retina	1.4	0.3	0.6	0.6	1.3	1.8	2.1	1.5
Corneal ulcer	0.7	0.2	1.4	0.5	0.9	0.9	0.7	0.4
Cancer and other neoplasms	0.7	0.1	0.6	0.9	1.3	1.0	0.5	0.6
Diseases of the iris	0.7	0.1	0.1	0.4	0.5	1.3	1.0	0.5
Measles	2.2	0.1	5.0	6.0	4.7	2.3	1.1	0.7
Meningitis	1.5	[3]	5.2	6.8	3.3	0.6	0.1	[3]
Scarlet fever	1.2	[3]	4.1	5.0	2.3	0.7	0.2	0.1
Kidney disease and diabetes	0.9	0.2	0.2	0.1	0.5	0.8	1.6	1.4
Influenza (grippe)	0.8	-------	0.6	0.5	0.7	0.8	1.3	1.0
Typhoid fever	0.7	-------	1.1	1.5	1.6	1.0	0.4	0.3
Syphilis and locomotor ataxia	0.7	0.4	0.3	0.7	0.5	1.4	0.9	0.1
Smallpox	0.7	-------	1.8	2.0	1.1	0.4	0.4	0.3
Accidents	16.5	0.6	8.7	29.5	31.7	29.0	15.4	7.2
Explosives (dynamite, gunpowder, etc.)	2.2	-------	0.2	2.0	3.4	6.5	1.7	0.3
Firearms	1.8	-------	0.2	2.0	6.7	3.9	0.7	0.3
Falls	1.2	-------	1.2	2.7	1.6	1.4	1.4	1.0
Flying objects (not from explosions)	1.1	-------	0.3	1.4	1.7	1.6	1.4	0.7
Cutting or piercing instruments	0.9	-------	2.0	4.9	1.9	0.7	0.3	0.2
Burns	0.3	-------	0.4	0.1	0.3	0.6	0.4	0.2
All other accidental injuries	9.0	0.6	4.4	16.4	16.1	14.4	9.5	4.4
Poisoning	0.9	[3]	0.5	0.7	0.9	1.5	1.2	0.5
Foreign substances in the eye	1.2	-------	0.7	1.3	1.7	2.1	1.5	0.6
All other definitely reported causes	14.0	9.3	19.4	16.6	14.6	15.3	13.9	10.5
Indefinitely or inaccurately reported causes	25.5	69.1	19.9	14.7	16.6	18.7	20.4	25.4
Congenital (cause not stated)	7.4	68.1	-------	-------	-------	-------	-------	-------
Neuralgia	1.5	-------	0.1	0.5	1.2	2.2	2.8	1.8
Exposure to heat	1.4	-------	0.2	0.3	0.6	2.2	2.6	1.5
Sore eyes	1.4	0.1	3.5	2.7	2.7	1.5	0.8	0.4
All other	13.8	0.9	16.1	11.2	12.1	12.9	14.2	21.6
Combination of different classes of causes	0.9	-------	0.4	0.9	1.2	1.1	1.2	1.2
	PER CENT OF TOTAL [4]							
Total	100.0	10.2	11.2	6.3	8.3	21.6	22.3	20.1
Cause reported	100.0	11.2	11.3	6.4	8.4	21.7	21.7	19.3
Definitely reported causes	100.0	4.7	12.3	7.4	9.4	23.7	23.2	19.3
Cataract	100.0	8.5	3.8	2.1	3.1	9.5	24.8	48.2
Glaucoma	100.0	0.7	1.4	0.6	2.9	13.7	47.7	33.0
Atrophy of the optic nerve	100.0	6.6	4.6	4.7	7.0	33.8	30.1	13.3
Ophthalmia neonatorum	100.0	21.2	76.6	0.9	1.0	0.3	-------	-------
Trachoma (granular eyelids)	100.0	0.6	7.1	8.3	17.3	31.5	25.0	10.2
Diseases of the retina	100.0	2.7	5.2	2.7	7.9	28.0	33.2	20.3
Corneal ulcer	100.0	3.1	22.0	4.7	9.8	27.8	20.8	11.8
Cancer and other neoplasms	100.0	1.2	9.9	8.6	16.0	31.3	16.5	16.5
Diseases of the iris	100.0	1.3	1.3	3.8	6.8	41.0	32.1	13.7

See footnotes at end of table.

TABLE 82.—BLIND POPULATION, BY AGE WHEN VISION WAS LOST AND REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920—Con.

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	Total [1]	Born blind	LOSING VISION AT AGE OF— Less than 5 years	5 to 9 years	10 to 19 years	20 to 44 years	45 to 64 years	65 years or over [2]
	PER CENT OF TOTAL [4]—continued							
Cause reported—Continued.								
Definitely reported causes—Continued.								
Measles	100.0	0.3	25.6	17.4	17.7	22.2	10.8	6.1
Meningitis	100.0	0.2	39.9	29.7	19.1	9.0	1.8	0.4
Scarlet fever	100.0	0.2	39.3	27.4	16.3	12.1	3.2	1.5
Kidney disease and diabetes	100.0	2.0	3.0	0.7	4.6	18.8	40.3	30.7
Influenza (grippe)	100.0	-------	8.2	4.3	7.1	21.0	34.9	24.6
Typhoid fever	100.0	-------	17.7	13.7	19.3	30.9	11.2	7.2
Syphilis and locomotor ataxia	100.0	6.3	4.6	6.7	6.7	44.2	27.9	3.8
Smallpox	100.0	-------	31.2	19.5	14.3	13.9	13.9	7.4
Accidents	100.0	0.4	5.9	11.4	16.0	37.9	20.1	8.4
Explosives (dynamite, gunpowder, etc.)	100.0	-------	1.0	5.7	12.8	62.0	15.9	2.6
Firearms	100.0	-------	1.5	7.1	31.4	47.6	8.6	3.7
Falls	100.0	-------	10.9	13.9	11.1	23.6	24.3	16.2
Flying objects (not from explosions)	100.0	-------	3.0	8.8	13.4	32.9	28.5	13.4
Cutting or piercing instruments	100.0	-------	23.8	33.2	16.5	15.2	7.0	4.3
Burns	100.0	-------	14.3	1.8	8.0	37.5	26.8	11.6
All other accidental injuries	100.0	0.8	5.5	11.6	15.0	34.8	22.9	9.4
Poisoning	100.0	0.3	6.9	5.2	8.5	38.0	29.2	11.8
Foreign substances in the eye	100.0	-------	6.6	6.6	11.8	37.6	27.2	10.2
All other definitely reported causes	100.0	7.5	15.9	7.7	8.9	23.9	21.6	14.6
Indefinitely or inaccurately reported causes	100.0	30.0	8.8	3.7	5.4	15.9	17.2	19.0
Congenital (cause not stated)	100.0	100.0	-------	-------	-------	-------	-------	-------
Neuralgia	100.0	-------	0.7	2.0	6.3	30.7	38.6	21.6
Exposure to heat	100.0	-------	1.8	1.2	3.4	32.8	39.9	20.9
Sore eyes	100.0	0.6	28.9	12.7	16.2	23.1	12.5	6.0
All other	100.0	0.7	13.3	5.2	7.4	20.5	22.5	30.4
Combination of different classes of causes	100.0	-------	4.3	6.4	10.4	26.1	28.2	24.5
Cause unknown or not reported	100.0	2.5	9.9	5.8	7.8	20.6	26.8	26.6

[1] Includes those for whom the age when vision was lost was not reported or not definitely reported; these are not assigned to any of the individual age groups, except that persons who were reported as having lost their vision in old age but without statement as to the exact age are included in the group "65 years or over."

[2] Includes those who were reported as having lost their vision in old age but without statement as to the exact age.

[3] Less than one-tenth of 1 per cent.

[4] Based upon the number for whom the age when vision was lost was reported.

Of persons reported as born blind, over two-thirds give no further statement by which to classify the actual cause. For the remainder of congenital blindness the chief specific causes asserted are cataract, ophthalmia neonatorum, atrophy of the optic nerve, accidents, glaucoma, syphilis, and locomotor ataxia. Accidents, however, figure rather largely in the returns of congenital blindness. Of that blindness occurring under 5 years, ophthalmia neonatorum, which generally appears within a very short time after birth, easily ranks first, with over one-fifth (21 per cent) of all blindness occurring at this period attributable to it. This disease is followed by accidents of various forms with about one-twelfth, cutting or piercing instruments being much the leading form. Next come meningitis and measles, with somewhat lower proportions, together accounting for one-tenth of blindness under 5 years—or, with scarlet fever added, for about one-seventh. Cataract and trachoma (with sore eyes), however, come next. At 5 to 9 years of age first place is taken by accidents, considerably over one-fourth (29.5 per cent) of all blindness of this period being thus accounted for.

the proportion for cutting or piercing instruments alone (4.9 per cent) standing among the highest single specific cause. Meningitis (6.8 per cent) and measles (6 per cent) come next; if scarlet fever (5 per cent) is added to these two diseases, nearly one-fifth of all blindness of this period is chargeable to them. Cataract and trachoma stand much as in the preceding period, about fourth. In this period atrophy of the optic nerve begins to show as a considerable factor in the causation of blindness. At from 10 to 19 years accidents are still far in the lead as a cause of loss of eyesight, blindness from firearms alone (6.7 per cent) now ranking ahead of any other specific cause. Cataract and atrophy of the optic nerve are steadily mounting. Trachoma has also increased somewhat. Most of the general diseases of childhood affecting eyesight show a falling off.

At from 20 to 44, or in early middle life, accidents are again found considerably in the lead, explosives (6.5 per cent) having become the leading form and indicating the exposure to industrial hazards arising at this period. After accidents in general, atrophy of the optic nerve has assumed second place, though cataract is not far behind. Glaucoma at this stage becomes another important factor in producing blindness. Trachoma has declined. At from 45 to 64, or in late middle life, the priority passes from accidents to cataract, the proportion for which has more than doubled since the preceding period. Glaucoma has increased at an even greater rate, more than trebling. Atrophy of the optic nerve shows for the first time a decrease. After 64, or in advanced years, cataract becomes the foremost cause of blindness, being responsible for over one-third (34.1 per cent) of all blindness at that time of life. Glaucoma still ranks high, but not quite as high as in the preceding period. Accidents, while having no such proportions as those of earlier years, are still frequent enough to take third place.

All the causes of blindness are operative to a greater or less extent at every period of life after birth, except ophthalmia neonatorum, which is not reported at all for persons in advanced life. Cataract is operative throughout life as a cause of blindness, generally increasing with the years, becoming in old age the outstanding cause.[55] Almost one-half of the blindness resulting from cataract occurs after 64, or in old age, and nearly three-fourths after 44, or after the prime of life. Glaucoma is distinctively a disease of later adult life, nearly one-half occurring between 45 and 64.[56] Neuralgia, an ill-defined affection, shows a slightly earlier rise. Atrophy of the optic nerve, though an active cause at all ages, is mainly a disease of adult life, particularly of early adult life, almost four-fifths occurring after 20. Ophthalmia neonatorum is naturally confined almost exclusively to early infancy. Trachoma has increasing proportions to the period of early middle age, 20 to 44 years, after which it drops. Its kindred disorder, "sore eyes," has a similar trend, except that there is a high proportion in infancy and early childhood, which is properly ascribable, possibly, to some other affection. Diseases of the retina, corneal ulcer, cancer and other neoplasms, and diseases of the iris have a somewhat similar movement, their proportions increasing rather steadily up to early middle life, after which time there is a decline. All of them except retinal diseases reach their greatest strength at the period 20 to 44 years, though corneal ulcer has its next highest proportion in early childhood, at that period probably being confused to some extent with ophthalmia neonatorum.

[55] The lens generally becomes harder after middle age, often attended with more or less loss of accommodation.

[56] Predisposing conditions as to glaucoma are often those leading to or involving vascular changes or changes in the blood circulation.

Among general diseases, four of them especially incident to childhood and largely exanthematic in character, namely, scarlet fever, meningitis, measles, and smallpox, as we should expect, mainly operate to produce blindness at that time, though measles shows a second high peak in early adult life. Kidney disease and diabetes and influenza, on the other hand, gradually increase through early life and up to late middle life, with a decline in extreme old age. The same is true of syphilis and locomotor ataxia, except that these two kindred affections are at their highest point in early middle life. Typhoid fever is very high in childhood, but higher still in early middle life.

Accidents or external injuries, as has been shown, constitute the most important cause of blindness during the most active period of life, or from 5 to 44, and nearly the most important cause up to old age. Accidents are in evidence at earliest life, increasing rapidly through childhood and youth, and reaching their peak, in different forms, in early and middle adult life, after which there is a gradual decline, corresponding with the rise and fall of the active industrial life of man. This movement is also generally true of the several individual causes among accidents, and also of poisoning and foreign substances in the eye. Blindness from cutting or piercing instruments has its peak at an earlier age, however, and blindness from falls and exposure to heat at a later.

The diseases causing a larger part of their blindness in childhood and youth, or under 20 years, than in any other general period of life are, in order, ophthalmia neonatorum, meningitis, scarlet fever, smallpox, measles, sore eyes, typhoid fever, corneal ulcer, cancer and other neoplasms, and trachoma. Those causing a larger part in early adult life are syphilis and locomotor ataxia, diseases of the iris, and atrophy of the optic nerve. Those causing a large part in middle or late adult life, not including old age, are glaucoma, kidney disease and diabetes, neuralgia, influenza, and diseases of the retina. The one disease causing the largest part of its blindness in old age is cataract. A larger part of accidents in general causing blindness occur in early adult life than at any other period. Of accidents from cutting or piercing instruments and from falls a larger part occur in childhood and youth; from explosives, firearms, poisoning, foreign substances in the eye, burns, and flying objects, in early adult life; and from exposure to heat, in later adult life. (See also Table 83.)

So far as relation may be discovered between the time of life at which occurred the loss of sight and the part of the eye affected, it seems in general that when the disorder has connection with the conjunctiva, cornea, or iris, and also when cancer and other neoplasms are involved, blindness is likely to result the more often in early life; and that when the disorder has connection with the lens, the retina, or the optic nerve, and also when glaucoma is involved, blindness is likely to come the more frequently in later life. It may further be noted that, on the whole, the milder the form of attack, or the more gradual the approach, of a disorder affecting the eyesight, the less likely is total blindness to be the outcome.

In Table 83 are shown the proportions of the blind returning special schedules for both 1920 and 1910, according to the different causes, who lost sight at the broad age periods under 20, from 20 to 44, from 45 to 64, and at 65 or over.

TABLE 83.—BLIND POPULATION, BY REPORTED CAUSE OF BLINDNESS—PER CENT DISTRIBUTION BY AGE WHEN VISION WAS LOST, FOR THE UNITED STATES: 1920 AND 1910

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	PER CENT LOSING VISION AT SPECIFIED AGE [1]							
	1920				1910			
	Less than 20 years	20 to 44 years	45 to 64 years	65 years or over	Less than 20 years	20 to 44 years	45 to 64 years	65 years or over
Total	36.2	21.7	22.4	19.8	30.5	23.5	24.2	21.8
Cause reported	37.4	21.8	21.8	18.9	31.8	23.6	23.9	20.8
Definitely reported causes	33.9	23.8	23.3	19.1	30.2	25.3	24.5	20.0
Cataract	17.6	9.6	24.9	47.9	10.6	11.0	28.3	50.1
Glaucoma	5.6	13.8	47.8	32.8	3.4	14.0	51.6	31.0
Atrophy of the optic nerve	23.0	33.9	30.2	12.9	15.5	33.0	35.0	16.5
Ophthalmia neonatorum	99.7	0.3			99.8	0.2		
Trachoma (granular eyelids)	33.3	31.5	25.0	10.2	28.0	32.0	26.8	13.2
Diseases of the retina	18.7	28.1	33.3	19.9	8.6	44.3	33.3	13.8
Corneal ulcer	39.6	27.8	20.8	11.8	46.4	25.0	20.0	8.6
Cancer and other neoplasms	36.0	31.4	16.5	16.1	36.8	15.8	13.2	34.2
Diseases of the iris	13.3	41.2	32.2	13.3	11.4	52.3	30.3	6.1
Measles	61.1	22.3	10.8	5.9	59.3	24.4	12.6	3.7
Meningitis	88.8	9.0	1.8	0.4	87.9	10.1	2.0	
Scarlet fever	83.2	12.1	3.2	1.5	87.5	9.8	2.0	0.7
Kidney disease and diabetes	10.3	18.9	40.4	30.5	8.8	15.4	44.1	31.6
Influenza (grippe)	19.6	21.1	35.0	24.3	14.5	17.8	37.4	30.4
Typhoid fever	50.6	30.9	11.2	7.2	46.7	29.7	15.6	8.0
Syphilis and locomotor ataxia	24.2	44.2	27.9	3.8	10.5	54.1	35.3	
Smallpox	65.2	13.9	13.9	7.0	71.2	20.0	7.0	1.9
Accidents	33.8	37.9	20.1	8.3	32.1	40.3	18.8	8.7
Explosives (dynamite, gunpowder, etc.)	19.5	62.0	15.9	2.6	18.2	64.7	15.1	2.0
Firearms	40.0	47.6	8.6	3.7	36.4	52.2	9.1	2.4
Falls	36.0	23.7	24.4	15.8	39.6	22.9	19.8	17.6
Flying objects (not from explosions)	25.3	33.0	28.6	13.2	19.4	34.2	31.0	15.4
Cutting or piercing instruments	73.5	15.2	7.0	4.3	85.0	11.4	3.2	0.5
Burns	24.1	37.5	26.8	11.6	30.8	39.6	20.1	9.4
All other accidental injuries	32.9	34.8	22.9	9.3	31.6	34.5	22.2	11.7
Poisoning	21.0	38.0	29.2	11.8	10.4	44.3	31.1	14.2
Foreign substances in the eye	25.1	37.7	27.3	10.0	14.6	34.0	35.0	16.5
All other definitely reported causes	39.9	23.9	21.8	14.3	46.5	21.3	18.9	13.2
Indefinitely or inaccurately reported causes	48.3	16.0	17.4	18.4	34.7	21.0	22.6	21.7
Congenital (cause not stated)	100.0				100.0			
Neuralgia	9.1	30.7	38.6	21.6	7.0	30.3	42.7	20.0
Exposure to heat	6.5	32.8	39.9	20.9	5.4	28.7	38.2	27.7
Sore eyes	58.4	23.1	12.5	6.0	50.6	28.6	14.2	6.6
All other	27.0	20.8	22.9	29.3	21.4	23.6	26.0	29.0
Combination of different classes of causes	21.3	26.2	28.4	24.1	15.1	26.8	34.1	24.0
Cause unknown or not reported	26.1	20.7	26.9	26.3	18.8	22.1	27.3	31.7

[1] Percentages are based upon the population for whom the age when vision was lost was definitely reported.

For blindness occurring under 20, or in childhood and youth, increased proportions are found in the case of nearly all the specific affections of the eye, the only exceptions being ophthalmia neonatorum, corneal ulcer, and cancer and other neoplasms. In some cases, especially in that of cataract, retinal diseases, and atrophy of the optic nerve, the increases are considerable. With general diseases there are also increases, the only exceptions being in the case of scarlet fever and smallpox. The increase for syphilis and locomotor ataxia is heavy.

With accidents in general there is a slight increase, and also an increase for explosives, firearms, flying objects, and exposure to heat, and notable increases for poisoning and foreign substances in the eye. For blindness from disease occurring in the older periods of life, on the other hand, the decreases are general, the increases being rather the exceptions. From 20 to 44 there are increases for atrophy of the optic nerve, ophthalmia neonatorum, corneal ulcer, cancer and other neoplasms, scarlet fever, kidney disease and diabetes, influenza, typhoid fever, neuralgia, and a few forms of accidents. With cancer and other neoplasms the increase is very large. For blindness occurring from 45 to 64 increases are found with respect to corneal ulcer, cancer and other neoplasms, diseases of the iris, scarlet fever, smallpox, accidents in general, and certain kinds of accidents, especially from cutting or piercing instruments. The increase is considerable as to smallpox. For blindness occurring at 65 or over the increases are with glaucoma (and neuralgia also), retinal diseases, corneal ulcer, diseases of the iris, measles, scarlet fever, smallpox, and some forms of accidents. The increase is very considerable for smallpox, for diseases of the iris, scarlet fever, and accidents from cutting or piercing instruments. To some extent the increased proportions for causes of blindness occurring at one period simply indicate decreased proportions at other periods. The matter is further affected by the increasing number of old people in the population upon whom blindness might fall.

It is admitted that exact comparisons between the two censuses of the causes of blindness at certain ages cannot be made on the basis of the figures just shown. The general increase in the percentage for those under 20 years of age in blindness attributed to specific or general diseases, as well as in accidents causing blindness, corresponds with the apparent increase of blindness occurring in childhood and youth (already shown in Table 31, page 49). As stated in connection with that table, this increase may be accountable to the fact that returns were fuller and more accurate for the younger age groups in 1920 than in 1910. But if the comparative risk of blindness at the different ages is taken into consideration, there is really a decreasing proportion of the younger persons becoming blind in 1920 and an increase in those of middle age.

On the basis of the figures in Table 83, it appears that most of the specific eye affections, while decreasing in their effect upon older persons, are more dangerous than in 1910 to those under 20 years of age. Some of the general diseases causing blindness, notably scarlet fever and smallpox, are decreasing in their mortality rates in the general population, but they still appear to be serious in their effects in producing blindness, and among nearly all ages. Accidents also, which are increasing fatalities year by year among the general population, are increasing blindness in early life, which may mean that the youth of the country is entering industries having exposure to such dangers in relatively larger numbers than heretofore; but blindness resulting from accidents apparently has increased even more with those in adult life.

In Table 84 are given for each sex separately the proportions of blindness for the different causes according to the age of its occurrence.

Few considerable variations are found in the proportions for the two sexes at the different periods. With cataract, though greater at all ages for females than for males, the least difference is in infancy and early childhood, and the greatest in early adult life; and with glaucoma, the greatest in early and middle life, a condition largely true of neuralgia as well. With atrophy of the optic nerve the proportion is greater for females than for males among those born blind. With trachoma the proportion for females exceeds that for males up to middle life. Cancer and other neoplasms have a serious effect upon females in early adult life. The greatest difference between the two sexes in the proportions for syphilis is in adult life. Particular liability to loss of sight from accidents for males begins in the years of youth, though the relatively high proportion for some forms of accidents among females in early adult life may be an indication of their entry into industrial life and of its effects at that period.

TABLE 84.—BLIND POPULATION, BY SEX AND AGE WHEN VISION WAS LOST—PER CENT DISTRIBUTION BY REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules. Base numbers in Table 108, p. 184]

REPORTED CAUSE OF BLINDNESS	Total	Born blind	LOSING VISION AT AGE OF—					
			Less than 5 years	5 to 9 years	10 to 19 years	20 to 44 years	45 to 64 years	65 years or over
	MALE							
Cause reported	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Definitely reported causes	75.3	29.2	79.7	86.1	85.6	82.4	80.3	73.5
Cataract	12.2	10.2	4.5	3.8	4.5	5.0	14.4	32.0
Glaucoma	3.7	0.4	0.5	0.3	1.1	2.2	7.9	7.2
Atrophy of the optic nerve	5.6	2.7	2.1	3.9	4.0	8.3	7.8	4.0
Ophthalmia neonatorum	2.6	4.6	19.2	0.5	0.3	(1)	-------	-------
Trachoma (granular eyelids)	1.4	(1)	0.7	1.1	1.8	2.0	1.8	1.0
Diseases of the retina	1.5	0.3	0.7	0.6	1.4	1.9	2.4	1.5
Corneal ulcer	0.7	0.2	1.4	0.4	0.5	0.9	0.8	0.6
Cancer and other neoplasms	0.7	(1)	0.9	0.8	1.4	0.7	0.5	0.7
Diseases of the iris	0.5	0.1	0.1	0.1	0.5	0.9	0.7	0.4
Measles	2.0	0.1	4.6	5.5	3.6	1.8	1.1	1.0
Meningitis	1.2	(1)	5.1	5.8	2.6	0.3	0.1	0.1
Scarlet fever	1.0	-------	4.2	4.4	2.0	0.5	0.2	0.1
Kidney disease and diabetes	0.7	0.2	0.2	-------	0.4	0.5	1.2	1.4
Influenza (grippe)	0.7	-------	0.8	0.5	0.6	0.6	1.1	0.7
Typhoid fever	0.7	-------	1.3	1.7	1.3	1.0	0.3	0.5
Syphilis and locomotor ataxia	0.9	0.3	0.3	0.7	0.6	1.8	1.2	0.2
Smallpox	0.6	-------	1.8	2.0	1.0	0.4	0.4	0.3
Accidents	23.2	0.6	9.6	37.2	43.2	36.9	22.3	10.3
Explosives (dynamite, gunpowder, etc.)	3.7	-------	0.4	3.0	5.2	9.1	2.8	0.5
Firearms	2.7	-------	0.2	2.4	9.9	5.2	1.1	0.7
Falls	1.2	-------	1.2	2.3	1.5	1.2	1.5	0.9
Flying objects (not from explosions)	1.6	-------	0.3	2.4	2.3	2.2	2.1	1.2
Cutting or piercing instruments	1.1	-------	2.2	5.6	2.4	0.8	0.4	0.3
Burns	0.4	-------	0.4	-------	0.5	0.7	0.5	0.3
All other accidental injuries	12.4	0.6	4.8	21.5	21.4	17.7	13.9	6.5
Poisoning	1.2	(1)	0.6	0.7	0.9	1.9	1.7	0.9
Foreign substances in the eye	1.6	-------	0.7	1.3	2.0	2.6	2.3	1.0
All other definitely reported causes	12.4	9.3	20.4	14.7	11.8	12.0	12.2	9.7
Indefinitely or inaccurately reported causes	23.5	70.8	19.9	12.8	13.2	16.3	18.1	24.8
Congenital (cause not stated)	7.0	69.9	-------	-------	-------	-------	-------	-------
Neuralgia	1.0	-------	0.1	0.5	0.6	1.3	1.6	1.2
Exposure to heat	1.9	-------	0.4	0.2	0.7	2.5	3.4	2.2
Sore eyes	1.1	0.1	3.0	2.4	2.0	1.2	0.5	0.5
All other	12.5	0.9	16.4	9.6	9.9	11.3	12.6	21.0
Combination of different classes of causes	1.2	-------	0.4	1.1	1.3	1.2	1.6	1.7

[1] Less than one-tenth of 1 per cent.

TABLE 84.—BLIND POPULATION, BY SEX AND AGE WHEN VISION WAS LOST—PER CENT DISTRIBUTION BY REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920—Continued

[Figures include only blind persons returning special schedules. Base numbers in Table 108, p. 184]

REPORTED CAUSE OF BLINDNESS	Total	Born blind	LOSING VISION AT AGE OF— Less than 5 years	5 to 9 years	10 to 19 years	20 to 44 years	45 to 64 years	65 years or over
	FEMALE							
Cause reported	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Definitely reported causes	71.1	33.0	79.7	82.2	76.7	74.7	75.6	73.4
Cataract	15.9	10.5	4.8	5.3	6.0	8.2	17.2	36.4
Glaucoma	7.8	0.3	0.8	0.7	3.1	6.4	17.9	11.6
Atrophy of the optic nerve	3.9	3.2	2.0	3.2	4.3	6.0	5.4	2.7
Ophthalmia neonatorum	4.4	7.4	23.0	0.4	0.5	0.1	------	------
Trachoma (granular eyelids)	1.7	0.1	1.2	2.9	5.2	2.7	1.6	0.6
Diseases of the retina	1.2	0.3	0.5	0.6	1.1	1.5	1.7	1.4
Corneal ulcer	0.7	0.2	1.5	0.7	1.4	1.1	0.6	0.3
Cancer and other neoplasms	0.7	0.1	0.3	1.1	1.2	1.7	0.6	0.5
Diseases of the iris	0.9	0.1	0.1	0.8	0.6	2.1	1.4	0.5
Measles	2.6	------	5.5	6.7	6.4	3.4	1.2	0.4
Meningitis	1.9	------	5.3	8.1	4.6	1.3	0.1	------
Scarlet fever	1.4	0.1	3.9	5.7	2.8	1.1	0.2	0.1
Kidney disease and diabetes	1.1	0.1	0.3	0.2	0.6	1.4	2.2	1.4
Influenza (grippe)	1.0	------	0.4	0.6	0.8	1.2	1.5	1.4
Typhoid fever	0.7	------	1.0	1.3	2.2	1.0	0.5	0.1
Syphilis and locomotor ataxia	0.4	0.5	0.2	0.7	0.5	0.4	0.4	0.1
Smallpox	0.7	------	1.9	2.1	1.4	0.4	0.4	0.3
Accidents	7.0	0.7	7.6	20.0	12.4	10.0	5.1	3.8
Explosives (dynamite, gunpowder, etc.)	0.1	------	------	0.8	0.5	0.2	(1)	(1)
Firearms	0.4	------	0.2	1.4	1.3	0.9	0.1	------
Falls	1.3	------	1.2	3.2	1.9	1.6	1.0	1.2
Flying objects (not from explosions)	0.3	------	0.2	0.3	0.6	0.2	0.3	0.3
Cutting or piercing instruments	0.7	------	1.8	4.0	0.9	0.3	0.1	0.1
Burns	0.2	------	0.4	0.2	------	0.2	0.2	0.1
All other accidental injuries	4.0	0.7	3.9	10.0	7.2	6.7	3.4	2.1
Poisoning	0.4	------	0.4	0.7	0.9	0.7	0.5	0.1
Foreign substances in the eye	0.6	------	0.7	1.2	1.2	0.9	0.5	0.3
All other definitely reported causes	16.4	9.4	18.5	19.1	19.4	23.1	16.5	11.4
Indefinitely or inaccurately reported causes	28.3	67.0	19.9	17.0	22.3	24.5	23.8	26.0
Congenital (cause not stated)	7.9	66.0	------	------	------	------	------	------
Neuralgia	2.3	------	0.1	0.5	2.1	4.3	4.5	2.4
Exposure to heat	0.8	------	0.1	0.3	0.5	1.3	1.5	0.8
Sore eyes	1.8	0.1	4.1	3.1	3.9	2.2	1.2	0.4
All other	15.6	0.9	15.7	13.1	15.8	16.6	16.6	22.4
Combination of different classes of causes	0.6	------	0.3	0.8	1.0	0.9	0.6	0.6

[1] Less than one-tenth of 1 per cent.

Occupation before vision was lost.—Somewhat further light may be thrown upon the question of the causation of blindness by an examination of the occupations in which the blind were engaged prior to the loss of their sight, or the occupations from which the present blind population may be said to be recruited. This will serve to bring out the risk of loss of sight in different occupations, or to indicate in which ones there is special hazard of disease or accident to the eye.

Table 85 gives, for each of the principal causes of blindness, the percentage distribution of the blind 20 years of age or over who had been gainfully employed before the loss of sight, according to the occupations in which they were engaged; occupations are selected in which there are 100 or more engaged and therefore somewhat typical of the industrial activities of the United States.

TABLE 85.—BLIND POPULATION 20 YEARS OF AGE AND OVER, GAINFULLY OCCUPIED BEFORE VISION WAS LOST, BY SEX AND OCCUPATION—PER CENT DISTRIBUTION BY REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules. Base numbers in Table 109, p. 186]

CAUSE OF BLINDNESS	MALES [1]							
	All occupations	Farmers, etc.[2]	Laborers, building, general, and not specified	Carpenters and cabinet-makers	Wholesale and retail dealers (except hucksters and peddlers)	Professional service	Mine operatives (in other than coal mines or not specified)	Agricultural laborers
Cause reported	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Specific affection of the eye	39.3	40.6	35.4	43.7	53.6	53.6	11.9	36.6
Cataract	15.2	18.5	16.6	21.2	14.0	11.3	5.3	13.4
Atrophy of the optic nerve	7.2	5.2	5.0	7.6	14.2	12.7	2.2	3.9
Glaucoma	5.5	4.3	3.6	5.4	14.0	12.2	1.1	1.6
Trachoma (granular eyelids)	1.7	2.8	1.5	1.1	0.7	1.1	1.1	4.7
Corneal ulcer	0.8	1.1	0.7	1.1	0.5	0.5	0.7	1.2
Detachment of the retina	0.7	0.6	0.1	0.2	0.5	2.9	0.2	-
Diseases of the iris	0.7	0.6	0.6	0.4	0.9	1.8	-	0.4
All other	7.5	7.4	7.3	6.7	9.0	11.1	1.3	11.4
Diseases other than specific affection of the eye	11.2	11.7	10.8	11.0	14.6	10.4	4.2	12.2
Measles	1.4	2.6	1.6	0.9	0.7	0.5	0.2	2.8
Kidney disease and diabetes	0.9	1.0	1.0	0.9	2.0	1.8	-	0.4
Influenza (grippe)	0.8	1.0	0.3	0.2	1.6	0.9	0.2	1.2
Typhoid fever	0.6	0.8	0.5	0.6	0.7	0.5	0.9	2.0
Rheumatism	0.6	0.6	0.6	1.7	0.5	0.2	0.4	0.4
Locomotor ataxia	0.5	0.2	0.2	0.4	0.7	0.5	0.4	-
Diseases of the head, other than meningitis	0.4	0.4	0.4	0.9	-	0.2	0.2	-
All other	6.0	4.9	6.3	5.4	8.6	5.9	1.8	5.5
Accident or other injury (including sympathetic ophthalmia)	25.3	20.2	27.1	24.0	14.4	13.1	74.5	22.0
Explosions of dynamite, gunpowder, etc.	4.7	2.4	5.3	2.2	0.9	2.0	43.3	3.1
Firearms	2.7	3.7	1.4	2.8	1.6	1.6	1.5	3.1
Flying objects, other than in explosions	2.0	1.6	2.8	2.2	0.7	-	2.2	1.6
Explosions, of other than of dynamite, etc., or not specified	1.8	0.5	1.7	0.4	0.5	1.8	10.5	-
Falls	1.3	0.9	1.1	2.2	1.6	0.7	0.7	0.8
Blows to the head	0.8	0.6	0.7	0.9	0.7	0.2	0.2	0.4
In mines or quarries (n. o. s.) [3]	0.6	(4)	0.3	-	0.2	-	9.7	-
Cutting or piercing instruments	0.6	0.7	0.6	1.3	0.5	0.2	-	0.4
Burns	0.5	0.2	0.6	0.2	-	-	0.4	1.2
All other	10.4	9.5	12.6	11.9	7.9	6.6	5.9	11.4
Poisoning	1.6	1.0	1.2	2.2	1.1	2.3	1.3	2.0
Foreign substances in the eye	2.1	1.3	3.6	1.5	1.6	1.1	1.3	2.0
Acids and other chemically destructive substances	1.3	0.4	2.8	0.6	0.9	1.1	0.7	0.4
Dust and other foreign particles	0.8	0.8	0.7	0.9	0.7	-	0.7	1.6
All other definitely reported causes [5]	1.7	2.0	1.9	2.8	0.9	2.0	0.7	2.0
Causes indefinitely or inaccurately reported	18.8	23.2	20.0	14.7	13.7	17.4	6.2	23.2
Exposure to heat	2.8	2.9	2.6	2.6	1.1	0.7	0.4	2.0
Old age	2.2	3.3	2.9	2.8	1.8	1.1	1.1	3.1
Military service	1.6	2.5	1.0	1.1	0.9	1.8	0.2	0.8
Neuralgia	1.3	2.7	0.7	1.3	1.1	0.5	0.4	2.0
Strained eyes	0.9	0.5	0.4	0.9	1.6	4.1	-	1.2
Sore eyes	0.7	1.4	0.6	-	0.5	0.5	-	3.1
Catarrh and colds	0.7	1.0	0.6	0.4	0.7	-	0.4	1.2
Paralysis	0.7	0.6	0.6	0.4	0.7	0.9	0.4	-
Electric light	0.2	-	-	0.2	-	0.7	-	-
All other	7.7	8.3	10.7	5.0	5.4	7.2	3.1	9.8

See footnotes at end of table.

TABLE 85.—BLIND POPULATION 20 YEARS OF AGE AND OVER, GAINFULLY OCCUPIED BEFORE VISION WAS LOST, BY SEX AND OCCUPATION—PER CENT DISTRIBUTION BY REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920—Continued

[Figures include only blind persons returning special schedules. Base numbers in Table 109, p. 186]

CAUSE OF BLINDNESS	MALES [1]—continued							
	Railroad workers [3]	Chauffeurs, teamsters, etc. [4]	Blacksmiths, forgemen, and hammermen	Mechanics (n. o. s.) [5]	Soldiers, sailors, and marines	Coal mine operatives	Machinists, millwrights, and toolmakers	Clerks in stores and salesmen
Cause reported	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Specific affection of the eye	41.1	37.9	32.7	36.5	13.7	20.4	35.3	52.1
Cataract	16.3	14.1	15.0	13.9	5.3	6.8	8.4	11.6
Atrophy of the optic nerve	10.2	8.1	4.1	6.7	2.6	5.2	5.4	15.8
Glaucoma	4.5	4.5	4.1	7.7	1.6	2.1	9.0	13.0
Trachoma (granular eyelids)	0.8	1.0	0.5	1.9	1.1	1.6	0.6	-------
Corneal ulcer	0.4	0.5	0.9	0.5	0.5	1.0	0.6	-------
Detachment of the retina	2.0	1.0	0.5	-------	-------	0.5	3.0	3.4
Diseases of the iris	1.6	0.5	1.4	0.5	-------	-------	1.2	1.4
All other	5.3	8.1	6.4	5.3	2.6	3.1	7.2	6.8
Diseases other than specific affection of the eye	8.9	12.6	6.4	11.1	12.1	4.7	10.2	12.3
Measles	1.2	0.5	-------	-------	0.5	1.6	-------	-------
Kidney disease and diabetes	0.8	1.0	-------	0.5	0.5	-------	1.2	0.7
Influenza (grippe)	-------	0.5	0.5	1.0	0.5	0.5	-------	-------
Typhoid fever	-------	0.5	0.5	0.5	-------	-------	0.6	0.7
Rheumatism	0.8	-------	-------	1.9	0.5	0.5	0.6	-------
Locomotor ataxia	0.8	1.5	-------	-------	-------	-------	0.6	1.4
Diseases of the head, other than meningitis	0.4	0.5	0.5	0.5	-------	-------	0.6	-------
All other	4.9	8.1	5.0	6.7	10.0	2.1	6.6	9.6
Accident or other injury (including sympathetic ophthalmia)	32.1	24.2	31.8	35.1	42.6	62.8	42.5	19.9
Explosions of dynamite, gunpowder, etc.	3.7	-------	2.3	1.0	15.3	19.9	0.6	-------
Firearms	2.4	1.5	1.8	1.9	8.9	4.7	3.0	3.4
Flying objects, other than explosions	2.8	1.5	4.5	7.7	0.5	3.1	10.2	-------
Explosions, of other than of dynamite, etc., or not specified	1.6	1.0	1.4	5.3	2.1	8.9	1.8	2.1
Falls	1.6	2.5	0.5	1.4	0.5	2.6	3.6	2.7
Blows to the head	1.6	0.5	1.8	1.0	1.6	1.0	0.6	0.7
In mines or quarries (n. o. s.) [5]	-------	-------	-------	-------	-------	11.5	-------	-------
Cutting or piercing instruments	0.8	0.5	-------	1.4	-------	0.5	-------	0.7
Burns	1.2	0.5	3.2	0.5	1.1	1.0	0.6	-------
All other	16.3	16.2	16.4	14.9	12.6	9.4	22.2	10.3
Poisoning	1.2	2.0	0.5	1.0	1.1	1.0	1.8	1.4
Foreign substances in the eye	1.2	2.5	0.9	2.4	7.4	1.6	1.8	2.1
Acids and other chemically destructive substances	0.8	2.0	0.5	1.9	5.3	1.6	0.6	2.1
Dust and other foreign particles	0.4	0.5	0.5	0.5	2.1	-------	1.2	-------
All other definitely reported causes [9]	1.2	1.5	2.3	1.0	2.1	0.5	1.8	1.4
Causes indefinitely or inaccurately reported	14.2	19.2	25.5	13.0	21.1	8.9	6.6	11.0
Exposure to heat	4.5	1.5	12.3	2.9	1.6	1.0	1.8	0.7
Old age	-------	3.0	3.6	1.4	-------	0.5	0.6	1.4
Military service	-------	-------	0.9	0.5	12.6	-------	1.2	0.7
Neuralgia	-------	1.0	1.4	-------	-------	-------	-------	-------
Strained eyes	0.8	1.5	-------	0.5	0.5	0.5	0.6	0.7
Sore eyes	-------	-------	0.5	0.5	1.1	0.5	-------	-------
Catarrh and colds	-------	1.0	0.9	-------	-------	-------	0.6	-------
Paralysis	1.2	1.0	0.9	-------	-------	0.5	1.2	2.1
Electric light	-------	-------	-------	1.0	-------	-------	-------	-------
All other	7.7	10.1	5.0	6.3	5.3	5.8	0.6	5.5

See footnotes at end of table.

TABLE 85.—BLIND POPULATION 20 YEARS OF AGE AND OVER, GAINFULLY OCCUPIED BEFORE VISION WAS LOST, BY SEX AND OCCUPATION—PER CENT DISTRIBUTION BY REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920—Continued

[Figures include only blind persons returning special schedules. Base numbers in Table 109, p. 186]

CAUSE OF BLINDNESS	MALES [1]—continued							
	Cooks, waiters and servants	Painters, etc.[6]	Brick and stone masons	Clerks (except clerks in stores) and stenographers	Engineers (stationary) and cranemen	Iron and steel operatives (semi-skilled) [7]	Firemen (stationary) etc.	Manufacturers, officials, managers, and contractors
Cause reported	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Specific affection of the eye	41.6	42.8	36.6	61.9	33.1	37.4	27.4	57.3
Cataract	10.2	16.6	18.6	14.4	10.3	15.4	10.4	22.3
Atrophy of the optic nerve	12.4	7.6	1.4	16.5	5.1	8.9	6.6	11.7
Glaucoma	5.1	9.7	6.2	10.8	4.4	2.4	2.8	14.6
Trachoma (granular eyelids)	1.5	----	0.7	1.4	0.7	0.8	----	1.9
Corneal ulcer	0.7	----	2.1	0.7	0.7	----	----	----
Detachment of the retina	0.7	0.7	----	1.4	----	1.6	----	1.0
Diseases of the iris	0.7	0.7	0.7	3.6	----	1.6	0.9	----
All other	10.2	7.6	6.9	12.9	11.8	6.5	6.6	5.8
Diseases other than specific affection of the eye	10.2	10.3	3.4	10.1	10.3	12.2	6.6	7.8
Measles	----	----	0.7	----	1.5	----	----	----
Kidney disease and diabetes	0.7	----	----	1.4	----	----	0.9	1.0
Influenza (grippe)	0.7	----	----	0.7	0.7	0.8	----	1.0
Typhoid fever	----	----	----	----	1.5	----	0.9	----
Rheumatism	0.7	0.7	----	0.7	----	----	0.9	----
Locomotor ataxia	1.5	1.4	----	0.7	----	0.8	----	2.9
Diseases of the head, other than meningitis	0.7	----	----	0.7	----	0.8	0.9	----
All other	5.8	8.3	2.8	5.8	6.6	9.8	2.8	2.9
Accident or other injury (including sympathetic ophthalmia)	16.8	17.2	31.0	13.7	34.6	35.0	21.7	22.3
Explosions of dynamite, gunpowder, etc	1.5	0.7	8.3	2.2	0.7	1.6	2.8	7.8
Firearms	0.7	2.1	0.7	1.4	----	4.1	1.9	1.0
Flying objects, other than in explosives	1.5	1.4	4.1	----	4.4	4.9	0.9	1.9
Explosions, of other than of dynamite, etc., or not specified	----	0.7	1.4	2.2	6.6	4.1	3.8	4.9
Falls	2.9	2.1	2.1	----	1.5	1.6	----	1.9
Blows to the head	2.2	----	0.7	0.7	0.7	0.8	----	----
In mines or quarries (n. o. s.)[8]	----	0.7	0.7	----	1.5	----	----	----
Cutting or piercing instruments	----	----	0.7	----	0.7	----	----	----
Burns	0.7	1.4	----	----	1.5	2.4	3.8	1.0
All other	7.3	8.3	12.4	7.2	16.9	15.4	8.5	3.9
Poisoning	1.5	16.6	2.1	2.2	----	----	----	----
Foreign substances in the eye	1.5	1.4	8.3	0.7	1.5	3.3	2.8	1.0
Acids and other chemically destructive substances	0.7	0.7	7.6	0.7	1.5	0.8	2.8	1.0
Dust and other foreign particles	0.7	0.7	0.7	----	----	2.4	----	----
All other definitely reported causes [9]	0.7	0.7	2.1	1.4	2.2	0.8	0.9	2.9
Causes indefinitely or inaccurately reported	27.7	11.0	16.6	10.1	18.4	11.4	40.6	8.7
Exposure to heat	11.7	2.1	1.4	----	8.1	4.1	32.1	1.0
Old age	0.7	1.4	2.1	0.7	0.7	0.8	0.9	1.0
Military service	----	0.7	2.1	1.4	0.7	0.8	----	----
Neuralgia	0.7	0.7	0.7	----	----	----	----	----
Strained eyes	----	----	0.7	2.2	----	0.8	----	1.0
Sore eyes	0.7	----	----	----	----	----	----	----
Catarrh and colds	0.7	0.7	0.7	----	----	0.8	0.9	----
Paralysis	2.2	0.7	0.7	----	----	0.8	----	1.0
Electric light	1.5	----	----	----	2.9	----	----	----
All other	9.5	4.8	8.3	5.8	5.9	3.3	6.6	4.9

See footnotes at end of table.

TABLE 85.—BLIND POPULATION 20 YEARS OF AGE AND OVER, GAINFULLY OCCUPIED BEFORE VISION WAS LOST, BY SEX AND OCCUPATION—PER CENT DISTRIBUTION BY REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920—Continued

[Figures include only blind persons returning special schedules. Base numbers in Table 109, p. 186]

CAUSES OF BLINDNESS	FEMALES [1]							
	All occupations	Farmers, etc.[2]	Waitresses and servants (other than cooks)	Dressmakers and seamstresses (not in factory)	Laundry operatives, and laundresses (not in laundry)	Teachers, college presidents, and professors	Cooks	Agricultural laborers
Cause reported	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Specific affection of the eye	45.9	37.8	44.7	50.6	34.5	66.0	33.3	34.7
Cataract	18.5	22.5	19.5	17.2	21.1	12.0	22.0	18.5
Glaucoma	10.8	7.5	7.5	14.6	3.6	20.1	4.5	4.8
Atrophy of the optic nerve	3.9	0.8	4.5	6.2	4.9	7.2	2.8	1.6
Diseases of the iris	1.6	0.3	2.4	2.3	-	3.3	-	-
Trachoma (granular eyelids)	1.0	1.3	1.1	1.0	-	0.5	0.6	3.2
Detachment of the retina	0.7	0.3	0.8	0.3	-	2.9	0.6	-
Corneal ulcer	0.6	0.5	0.5	0.3	0.4	1.0	-	0.8
All other	8.9	4.7	8.3	8.8	4.5	19.1	2.8	5.6
Diseases other than specific affection of the eye	15.4	10.4	17.9	16.2	17.0	15.3	13.6	8.1
Measles	1.2	0.8	3.2	-	1.8	1.0	1.1	1.6
Kidney disease and diabetes	1.1	1.0	1.3	1.0	0.9	2.9	-	-
Influenza (grippe)	1.0	1.0	0.3	1.0	0.4	1.0	2.3	-
Rheumatism	0.8	0.5	1.9	0.6	0.4	1.0	-	-
Typhoid fever	0.6	0.5	0.5	1.0	1.3	1.0	-	-
Diseases of the head, other than meningitis	0.5	0.5	0.3	0.3	1.3	-	0.6	0.8
All other	10.2	6.0	10.4	12.3	10.8	8.6	9.6	5.6
Accident or other injury (including sympathetic ophthalmia)	7.3	5.2	9.1	8.1	8.5	3.3	6.2	3.2
Falls	1.6	0.3	2.1	1.9	1.8	1.0	1.1	-
Firearms	0.4	0.8	0.5	-	0.4	0.5	-	0.8
Flying objects, other than explosions	0.4	0.5	-	-	0.9	0.5	0.6	-
Blows to the head	0.4	0.5	0.5	0.3	0.9	-	1.1	-
Cutting or piercing instruments	0.2	0.3	-	-	0.9	-	-	-
Explosives	0.2	-	-	-	0.4	-	-	-
Burns	0.2	0.3	-	-	-	-	1.1	-
All other	4.0	2.6	5.9	5.8	3.1	1.4	2.3	2.4
Foreign substances in the eye	1.0	0.8	0.8	-	2.2	0.5	1.7	3.2
All other definitely reported causes [10]	1.4	0.8	2.4	1.6	0.9	1.0	1.1	2.4
Causes indefinitely or inaccurately reported	29.0	45.1	25.1	23.4	36.8	13.9	44.1	48.4
Old age	4.1	8.3	3.5	2.3	4.5	1.9	3.4	9.7
Neuralgia	3.7	9.3	3.5	1.6	5.8	2.4	2.8	8.1
Exposure to heat	2.6	1.0	0.5	-	4.0	-	20.9	5.6
Strained eyes	2.0	1.0	0.3	9.4	1.3	1.4	0.6	-
Sore eyes	1.4	3.4	2.1	0.3	0.9	0.5	1.1	2.4
Catarrh and colds	0.8	1.0	2.1	0.3	-	0.5	1.1	2.4
Paralysis	0.6	0.5	1.3	1.0	0.4	-	-	0.8
All other	13.7	20.5	11.8	8.4	19.7	7.2	14.1	19.4

[1] Includes those whose age was not reported
[2] Includes stock raisers, gardeners, florists, fruit growers, etc.
[3] Includes locomotive engineers and firemen, switchmen, flagmen, yardmen, etc.
[4] Includes carriage drivers and draymen.
[5] Not otherwise specified.
[6] Includes glaziers, varnishers, enamelers, etc.
[7] Blast furnaces and steel rolling mills, automobile, implement and wagon factories, car shops, shipyards, etc.
[8] Less than one-tenth of 1 per cent.
[9] Includes combination of different classes of causes.
[10] Includes poisoning and combination of different classes of causes.

It is not easy in every instance to determine why there should be greater liability to blindness from particular causes, especially diseases, in certain occupations than in others. In not a few cases it may not be far wrong to assume that the higher proportions are little more than the reflection of the general tendency for given diseases to manifest themselves at particular age periods, some occupations being engaged in at a later time in life than others. In other cases the real connection between the cause of blindness and occupation may eventually be found to be of a more intimate nature than can now be predicated. Blindness from a specific affection of the eye seems most often to result among persons engaged in indoor occupations, especially stores and offices, and least among those engaged in manual or outdoor labor. There are exceptions, however, which probably indicate a relationship between certain specific affections and a given occupation. The tendency for certain diseases to operate at particular times of life may be said to have illustration in the case of cataract, the high rates in certain occupations doubtless in large part being accounted for by the relatively large numbers in them of persons in advanced years, at which period this disease becomes most active. In addition, proportions above the average are found for several kinds of building and construction occupations, indicating an increased liability to cataract therein. Glaucoma is also more or less prevalent in advanced years, though in a few occupations it is probable that other factors are involved as well, including to some extent possibly indoor activities in which the eye is put to heavy use. Neuralgia, a disorder akin to glaucoma, obtains especially among persons in agricultural life, persons who generally live to rather advanced years. Atrophy of the optic nerve shows relatively high proportions in the same occupations in which locomotor ataxia does, a circumstance very likely indicating that the original and underlying cause in both cases is not infrequently venereal affection. The prevalence of trachoma and of its concomitant disorder, "sore eyes," among persons in agricultural pursuits is chiefly because the predominance of these diseases is for the most part in rural sections. Corneal ulcer apparently exists most strongly in certain occupations requiring manual labor, sometimes of a rather heavy nature. Detachment of the retina and diseases of the iris are found with relative frequency among persons occupied in professional service, in certain clerical tasks, and in certain mechanical tasks. Among general diseases, measles shows a relatively high proportion for persons engaged in agriculture, though possibly in some cases the actual cause was a different one. Variations among diseases of general character in the different occupations are doubtless in considerable part explained by the time of life at which they are most in operation and by the prevailing living conditions attending these occupations.

The most striking indication of this bearing of specific employment upon the loss of sight is met in the matter of accidents to the eye (including sympathetic ophthalmia) occasioned in industrial operations. In certain occupations the exposure of the workers is very evident. In mining, in military service, and in the work of machine tenders and like operatives, the proportions made blind by accidents are about doubled over the proportions for the blind as a whole; while in several other occupations, especially those of a mechanical character, the proportions are materially larger than the average. To accidents practically three-fourths (74.5 per cent) of the former operatives in mines (other than coal mines) owe their blindness; over three-fifths (62.8 per cent) of coal mine operatives; over two-fifths of soldiers, sailors, and marines (42.6 per cent), and of machinists, millwrights, and toolmakers (42.5 per cent); and approximately one-third of mechanics (35.1 per cent), iron and steel operatives (35 per cent), stationary engineers and cranemen (34.6 per cent), railroad workers (32.1 per cent), blacksmiths, forgemen, and hammermen (31.8 per cent), and brick and stone masons (31 per cent).

In certain particular forms of accidents industrial hazards become even more pronounced. Explosions of gunpowder, dynamite, etc., occasion from 3 times to 9 times as much blindness among coal miners, other miners, and persons in military service as they do among all occupational groups taken together;[57] in each of these occupations they constitute the most commonly reported cause of blindness. Explosions of other kinds destroy the sight from 2 times to 6 times as often among miners of both classes, stationary engineers and cranemen, mechanics, persons in managerial positions, iron and steel operatives, and stationary firemen as they do in the average. Accidents in mines or quarries not otherwise specified are responsible for from 16 to 19 times as much blindness among coal miners and other miners. From 2 times to 5 times as much blindness is caused by flying objects not in explosions among machinists, millwrights, and toolmakers, mechanics, iron and steel operatives, blacksmiths, forgemen, and hammermen, stationary engineers and cranemen, and brick and stone masons. Twice as much of the destruction of vision among mechanics and carpenters and cabinetmakers is occasioned by cutting or piercing instruments. From burns blindness happens from 3 times to 7 times as often among stationary firemen, blacksmiths, forgemen, and hammermen, iron and steel operatives, stationary engineers and cranemen, and painters. Falls are accountable for from 2 times to 3 times as much blindness among machinists, millwrights, and toolmakers, cooks, waiters, and servants, clerks in stores and salesmen, coal miners, chauffeurs and teamsters, carpenters and cabinetmakers, painters, and brick and stone masons. Blows on the head result in blindness from 2 times to 3 times as often among cooks, waiters, and servants, blacksmiths, forgemen, and hammermen, railroad workers, and persons in military service. With respect to firearms, without any obvious connection with industry, cases of blindness are from 2 times to 3 times as numerous among persons in military service, coal miners, and iron and steel operatives. Blindness from poisoning is 10 times as likely among painters, and is considerably more likely among persons in professional service, clerks and stenographers, carpenters and cabinetmakers, and brick and stone masons. Foreign substances in the eye induce blindness from 2 times to 4 times as often among brick and stone masons, persons in military service, general laborers (including building laborers), and iron and steel operatives. Relatively high proportions are likewise found from such substances as acids or other chemically destructive substances in the case of the three first-named groups, and also in the case of stationary firemen. When the foreign substance is dust and other foreign particles, the likelihood of blindness is especially great for iron and steel operatives, persons in military service, and agricultural laborers.[58] Exposure to heat is extremely damaging to the eye in the case of stationary firemen, blacksmiths, forgemen, and hammermen, cooks, waiters, and servants; and in only less degree in the case of stationary engineers and cranemen, railroad workers, and iron and steel operatives. Electric light proves especially injurious to stationary engineers and cranemen, cooks, waiters and servants, and mechanics. Blindness attributed to strained eyes is frequently reported by persons in professional service, clerks and stenographers, wholesale and retail dealers, and chauffeurs and teamsters, most of these groups being likely to subject their eyes to continuous strain.

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[57] One-half of quarry workers are blinded from this cause.

[58] One-fourth of the blindness of plasterers and cement finishers is also from acids, etc. See Table 38, The Blind in the United States, 1920.

Table 85 also gives similar statistics for females. In general, much the same observations apply as with males, but on the selective basis the number of occupations is very limited, and probably all specific affections are much less completely reported for manual workers. Again, specific affections of the eye seem to be responsible for less blindness in manual or the unskilled occupations than in others. In certain of these diseases, especially cataract and glaucoma (and also neuralgia), there is revealed a connection with the occupations of advanced life; and in trachoma (with sore eyes), a connection with agricultural pursuits. The relatively high proportion of cataract among cooks and laundry workers is perhaps ascribable to some extent to the exposure of this group to intense heat, which may induce a special form of this disease. One-fifth (20.9 per cent) of all blindness reported among cooks is ascribed directly to exposure to heat. Glaucoma and atrophy of the optic nerve obtain particularly among persons engaged in confining indoor work, especially those in sewing and in teaching. Persons engaged in teaching also show high proportions for diseases of the iris, detachment of the retina, and corneal ulcer, as well as other of the more general affections. A high proportion of blindness from accidents and from foreign substances in the eye is found for females engaged in manual work, especially for those in domestic and personal service. Blindness from "strained eyes," as with males, is the more likely to occur with persons whose work demands hard use of the eyes. Almost one-tenth (9.4 per cent) of the blindness of dressmakers and seamstresses is thus induced. This proportion, coupled with the high proportion just noted for glaucoma in the case of dressmakers and seamstresses and also in the case of teachers—the latter group more often correctly ascribing their ailment to that disease—may indicate material and direct connection between eyestrain and glaucoma.

In a consideration of the leading specific occupations in which persons now blind were once employed, in conjunction with the age period at which their blindness occurred, there are additional means of discovering the influence which particular callings possess with respect to the safety or lack of safety of the eyesight. So far as the proportion blinded in a particular calling at a certain age bears a fairly close relation to the proportion of the total population employed and losing sight at such age, little occupational risk may be said to appear; but where the representation of blinded persons, at the main working period of life, in a given calling is proportionately in excess of the total number of persons employed therein, there emerges, in the absence of other intervening factors, a rather definite occupational risk.

In Table 86 are presented the number and the percentage distribution of the male and female blind for those occupations having 100 or more persons engaged in them, according to broad age periods at which the loss of sight occurred.

TABLE 86.—BLIND POPULATION 20 YEARS OF AGE AND OVER, GAINFULLY OCCUPIED BEFORE VISION WAS LOST, BY SEX, OCCUPATION, AND AGE WHEN VISION WAS LOST, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

OCCUPATION BEFORE BLINDNESS	NUMBER					PER CENT OF TOTAL				
	Total[1]	Losing vision at age of—				Losing vision at age of—				
		20 to 24 years	25 to 44 years[2]	45 to 64 years[2]	65 years and over[2]	20 to 24 years	25 to 44 years[2]	45 to 64 years[2]	65 yrs. and over[2]
	MALES									
Total	14,826	1,008	4,593	5,052	3,861	6.8	31.0	34.1	26.0
Farmers, etc.[3]	5,054	336	1,221	1,666	1,729	6.6	24.2	33.0	34.2
Laborers, building, general, and not specified	1,459	95	497	516	315	6.5	34.1	35.4	21.6
Carpenters and cabinetmakers	517	13	115	203	177	2.5	22.2	39.3	34.2
Wholesale and retail dealers (except hucksters and peddlers)	496	7	122	214	146	1.4	24.6	43.1	29.4
Professional service	492	22	134	188	139	4.5	27.2	38.2	28.3
Mine operatives (in other than coal mines, or not specified)	479	50	262	117	43	10.4	54.7	24.4	9.0
Agricultural laborers	326	51	107	96	62	15.6	32.8	29.4	19.0
Railroad workers[4]	275	23	109	93	46	8.4	39.6	33.8	16.7
Chauffeurs, teamsters, etc.[5]	247	21	98	81	40	8.5	39.7	32.8	16.2
Blacksmiths, forgemen, and hammermen	240	10	62	74	89	4.2	25.8	30.8	37.1
Mechanics (n. o. s.)[6]	225	20	74	81	47	8.9	32.9	36.0	20.9
Soldiers, sailors, and marines	212	66	114	16	10	31.1	53.8	7.5	4.7
Coal mine operatives	200	20	80	66	29	10.0	40.0	33.0	14.5
Machinists, millwrights, and toolmakers	182	12	79	54	34	6.6	43.4	29.7	18.7
Clerks in stores and salesmen	166	10	72	59	24	6.0	43.4	35.5	14.5
Cooks, waiters, and servants	166	15	77	52	19	9.0	46.4	31.3	11.4
Painters, etc.[7]	166	4	50	67	42	2.4	30.1	40.4	25.3
Brick and stone masons	161	7	22	74	54	4.3	13.7	46.0	33.5
Clerks (except clerks in stores) and stenographers	158	16	63	55	19	10.1	39.9	34.8	12.0
Engineers (stationary) and cranemen	144	4	40	62	36	2.8	27.8	43.1	25.0
Iron and steel operatives (semiskilled)[8]	137	10	58	43	21	7.3	42.3	31.4	15.3
Firemen (stationary), etc.	120	5	46	45	22	4.2	38.3	37.5	18.3
Manufacturers, officials, managers, and contractors	115	1	25	45	42	0.9	21.7	39.1	36.5
Shoemakers and cobblers	108	2	26	37	37	1.9	24.1	34.3	34.3
Laborers, steam and street railroad	104	4	40	46	11	3.8	38.5	44.2	10.6
Operatives in clothing and textile factories (semiskilled)	101	6	35	32	25	5.9	34.7	31.7	24.8
All other and unclassifiable	2,776	178	965	970	603	6.4	34.8	34.9	21.7
	FEMALES									
Total	3,073	169	843	1,066	909	5.5	27.4	34.7	29.6
Farmers, etc.[3]	490	16	89	166	204	3.3	18.2	33.9	41.6
Waitresses and servants (other than cooks)	453	34	156	145	105	7.5	34.4	32.0	23.2
Dressmakers and seamstresses (not in factory)	349	14	90	124	113	4.0	25.8	35.5	32.4
Teachers, college presidents, and professors	232	14	66	79	66	6.0	28.4	34.1	28.4
Cooks	215	1	80	64	62	0.5	37.2	29.8	28.8
Agricultural laborers	146	19	31	49	45	13.0	21.2	33.6	30.8
Clothing and textile operatives (semiskilled)	108	7	26	40	31	6.5	24.1	37.0	28.7
All other and unclassifiable	1,080	64	305	399	283	5.9	28.2	36.9	26.2

[1] Includes those whose age at enumeration was not reported; includes also those for whom the age when vision was lost was not reported.

[2] Included under the appropriate age groups are those whose schedules indicated the period of life, but not the exact age, at which vision was lost. Of these, 39 males and 6 females became blind in earlier adult life (25 to 44); 47 males and 11 females in middle life (45 to 64); and 64 males and 19 females in old age (65 and over).

[3] Includes stock raisers, gardeners, florists, fruit growers, etc.

[4] Includes locomotive engineers and firemen, switchmen, flagmen, yardmen, etc.

[5] Includes carriage drivers and draymen.

[6] Not otherwise specified.

[7] Includes glaziers, varnishers, enamelers, etc.

[8] Blast furnaces and steel rolling mills, automobile, implement, and wagon factories, car shops, shipyards, etc.

Among males, almost two-fifths (37.8 per cent) of the loss of vision in all occupations happens in early adult life, the chief working years, or from 20 to 44; a larger proportion, therefore, in any particular occupation in this period may in general be taken to mean an increased liability to eye diseases or accidents therein. The proportion for soldiers, sailors, and marines losing sight in early adult life is naturally very high, almost nine-tenths of these having lost their sight under 45 years and nearly one-third under 25. With the exception of this group, the highest proportion losing vision under 45, nearly two-thirds, is for mine operatives in other than coal mines. Proportions of approximately one-half losing sight under 45 are found for cooks, waiters, and servants, coal mine operatives, clerks and stenographers, machinists, millwrights, and toolmakers, iron and steel operatives, clerks in stores and salesmen, agricultural laborers, chauffeurs, teamsters, etc., and railroad workers. It is to be understood, however, that in some of the foregoing occupations the larger proportions of persons engaged are in the active years of life, when blindness from industrial causes is more likely to occur.

In the similar statistics for females, occupational risk, so far as it has relation to the age of the occurrence of blindness, is here revealed to only a limited extent. In only one case, that of waitresses and servants, does the proportion of women losing sight under 45 reach two-fifths. Such proportion is next highest for cooks, teachers, and agricultural laborers.

HEREDITY OR CONSANGUINITY

In connection with the causation of blindness, serious consideration is to be given to the part which heredity may play in the problem. This, however, in its wide and general implications, of which the effects in blindness are but one phase, is a matter to a very large extent veiled in obscurity. Census inquiries upon the subject are concerned only with the existence of blind parents, of blind brothers or sisters, and of blind children, the inquiries as to blind parents including, as well, information as to their consanguinity. It is to be remembered that our statistics relate to individual blind persons, and not to families. They do not show the number of families having more than one blind member at one and the same time. In the tables showing family relationships, therefore, when there is more than one return from the same family, there results a certain number of duplications, or really cross references, which have not occurred in the previous statistics. In other words, the total number of blind relatives of the three classes is not necessarily as great as the sum of the number of blind parents, brothers or sisters, and children reported.

It is well to remember that in a limited proportion of cases the blindness reported as in another member of one's family, especially in a brother or sister, may be really chargeable to some disease of infectious character, often trachoma, a condition in which the matter of heredity is not involved at all. On the other hand, as certain forms of blindness, even though of hereditary origin, make their appearance relatively late in life, the census figures, having reference only to persons actually blind at the time of the census enumeration, may fall considerably short of showing the extent of ultimate hereditary blindness. In some measure the foregoing influences probably serve to counteract one another.

Of foremost importance in studying the connection between a given characteristic and heredity, or the transmissibility of a characteristic, would be the factor of the existence of relatives having that characteristic. Some evidence of the hereditary character of blindness would thus be revealed in the existence of blind relatives. The series of tables which follows (pp. 154 to 166) brings out the information on this subject so far as reported on the special schedules. The large proportion of unclassifiable causes, in addition to some natural errors in stating family relationships, make it necessary to use the tables with considerable caution.

Proportion having blind relatives.—The extent to which the blind reported in 1920 as having blind relatives is indicated in Table 87, in which are shown the number and the per cent of those having one or both parents blind, those having blind brothers or sisters, and those having blind children.

TABLE 87.—BLIND POPULATION REPORTING AS TO VISION OF PARENTS, BROTHERS OR SISTERS, AND CHILDREN, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

VISION OF PARENTS, BROTHERS OR SISTERS, AND CHILDREN	NUMBER			PER CENT DISTRIBUTION		
	Both sexes	Male	Female	Both sexes	Male	Female
Blind persons reporting as to vision of parents, total	39,872	23,413	16,459	100.0	100.0	100.0
Reporting one or both parents blind	1,662	916	746	4.2	3.9	4.5
Neither parent reported blind	38,210	22,497	15,713	95.8	96.1	95.5
Blind persons reporting brothers or sisters, total	36,339	21,417	14,922	100.0	100.0	100.0
Reporting blind brothers or sisters	3,537	2,008	1,529	9.7	9.4	10.2
Reporting brothers or sisters, but not blind	32,802	19,409	13,393	90.3	90.6	89.8
Blind persons reporting children, total	20,359	11,855	8,504	100.0	100.0	100.0
Reporting blind children	348	160	188	1.7	1.3	2.2
Reporting children, but not blind	20,011	11,695	8,316	98.3	98.7	97.8

Considering only those blind persons for whom definite information is available, the proportion having a parent blind, whether one parent or both parents, is 4.2 per cent.[59] The proportion having blind brothers or sisters is 9.7 per cent. The proportion having blind children is 1.7 per cent.[60] The relatively high proportion of the blind (not far from one-tenth) with blind brothers or sisters is perhaps, or in some respects, the most decided indication of the extent to which blindness prevails in certain families, or the extent to which heredity constitutes a factor in the causation of blindness—though due allowance should be made for the possibility of acquired blindness, especially from contagious diseases, among members of the same family.

The extent of blindness in particular families is further indicated by the degree in which the blind have relatives of more than one kind, or in the correlation of blindness in one of the several groups with blindness in another.

In Table 88 are given, for those having one or both parents blind, the number and per cent having also blind brothers or sisters, and the number and per cent having also blind children.

[59] There are 62 blind persons having both parents blind, or 0.2 per cent of the entire number making report. In certain schools for the blind 1 per cent or more of the pupils are found to have blind parents.

[60] Among the blind 15 years of age or over who have once been married the proportion having blind children is 1.4 per cent.

TABLE 88.—BLIND POPULATION REPORTING AS TO VISION OF PARENTS, CLASSIFIED ACCORDING TO VISION OF BROTHERS OR SISTERS AND CHILDREN, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

VISION OF BROTHERS OR SISTERS AND CHILDREN	BLIND PERSONS REPORTING AS TO VISION OF PARENTS		ONE OR BOTH PARENTS BLIND			NEITHER PARENT BLIND		
	Total number	Per cent distribution	Number	Per cent distribution	Per cent of total	Number	Per cent distribution	Per cent of total
Blind persons reporting brothers or sisters, total	36,102	100.0	1,579	100.0	4.4	34,523	100.0	95.6
Reporting blind brothers or sisters	3,517	9.7	494	31.3	14.0	3,023	8.8	86.0
Reporting brothers or sisters, but not blind	32,585	90.3	1,085	68.7	3.3	31,500	91.2	96.7
Blind persons reporting children, total	20,160	100.0	1,061	100.0	5.3	19,099	100.0	94.7
Reporting blind children	342	1.7	55	5.2	16.1	287	1.5	83.9
Reporting children, but not blind	19,818	98.3	1,006	94.8	5.1	18,812	98.5	94.9

Of those blind persons having a parent blind, practically three-tenths (31.3 per cent) have in addition brothers or sisters who are blind. This proportion is almost four times as great as the corresponding proportion for those not having a blind parent but having blind brothers or sisters (8.8 per cent). Of those having a parent blind, 5.2 per cent have themselves children who are blind. This proportion is over three times as great as the corresponding proportion for those not having a parent blind but having blind children (1.5 per cent). The percentage for the blind having blind brothers or sisters and also a blind parent is considerably over four times as large as the corresponding proportion for those not having blind brothers or sisters, or 14 per cent as against 3.3 per cent. The percentage of the blind who have blind children and also have a blind parent is more than three times as large as the corresponding proportion for those not having blind children, or 16.1 per cent as against 5.1 per cent.

Table 89 gives figures for the married, widowed, or divorced blind persons 15 years of age and over, showing the number reporting blind brothers or sisters correlated with the number reporting blind children.

TABLE 89.—MARRIED, WIDOWED, OR DIVORCED BLIND POPULATION REPORTING AS TO VISION OF BROTHERS OR SISTERS, CLASSIFIED ACCORDING TO VISION OF CHILDREN, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

VISION OF CHILDREN	BLIND PERSONS REPORTING AS TO VISION OF BROTHERS OR SISTERS		BROTHERS OR SISTERS BLIND			BROTHERS OR SISTERS, BUT NOT BLIND		
	Total number	Per cent distribution	Number	Per cent distribution	Per cent of total	Number	Per cent distribution	Per cent of total
Blind persons reporting children, total	18,677	100.0	1,453	100.0	7.8	17,224	100.0	92.2
Reporting blind children	314	1.7	86	5.9	27.4	228	1.3	72.6
Reporting children, but not blind	18,363	98.3	1,367	94.1	7.4	16,996	98.7	92.6

Of those having blind brothers or sisters, 5.9 per cent have in addition children who are blind. This proportion is almost five times as large as the corresponding proportion for those not having blind brothers or sisters (1.3 per cent). The proportion of the blind who have blind brothers or sisters and who also have blind children is nearly four times as large as the proportion for those not reporting blind chilren, or 27.4 per cent as against 7.4 per cent.[61]

In all these results are found evidence of the effects of heredity, or the extent to which blindness persists in given families, even with all necessary allowance for that portion of blindness which is due to acquired disease and which spreads among several members of one family.

Table 90 gives for the several race and nativity groups the number of the blind reporting one or both parents blind, together with the percentages based on these figures.

TABLE 90.—BLIND POPULATION, BY RACE AND NATIVITY, CLASSIFIED ACCORDING TO VISION OF PARENTS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

RACE AND NATIVITY	BLIND PERSONS REPORTING AS TO VISION OF PARENTS		ONE OR BOTH PARENTS BLIND			NEITHER PARENT BLIND		Per cent distribution of total blind population
	Total number	Per cent distribution	Number	Per cent distribution	Per cent of total	Number	Per cent distribution	
All classes	39,872	100.0	1,662	100.0	4.2	38,210	100.0	100.0
White	35,706	89.6	1,445	86.9	4.0	34,261	89.7	89.6
Native	29,561	74.1	1,252	75.3	4.2	28,309	74.1	74.1
Foreign-born	6,145	15.4	193	11.6	3.1	5,952	15.6	15.5
Negro	3,848	9.7	175	10.5	4.5	3,673	9.6	9.6
Indian	290	0.7	41	2.5	14.1	249	0.7	0.8
Other colored	28	0.1	1	0.1	(1)	27	0.1	0.1

[1] Per cent not shown, base being less than 100.

A somewhat larger proportion of Negroes than of whites have one or both parents blind, the percentages being, respectively, 4.5 and 4. The Indians, however, have much the highest proportion, or 14.1 per cent. Native whites have a higher proportion than the foreign born, the respective percentages being 4.2 and 3.1. The high proportion for Indians may be due to some extent to similar conditions in child and parent, the blindness in both being chargeable to the same cause, often trachoma. The relatively low proportion for foreign-born whites is possibly to be attributed in part to the fact that immigrants, in order to qualify for admission into the United States, must be of a rather select stock physically, and free to a relatively large extent of such pathological conditions as might lead to blindness. Furthermore, the large proportion of blindness among this group caused by accidents would serve somewhat to reduce the proportion of blindness of hereditary character with them.

In Table 91 are shown the proportions of the blind who have a parent blind, whether father or mother, or both,[62] distributed by age when vision was lost.

[61] In certain schools for the blind from one-tenth to one-fourth of the pupils are found to have blind relatives.

[62] The number of the blind who have both parents blind being very small, the proportion based upon such number and the proportion based upon the number having one or both parents blind would be very little different. In other investigations it has been found that the proportion of children affected with blindness when both parents are blind and the proportion when only one parent is blind are much the same. The explanation for this situation probably lies in the circumstance that with different pathological conditions in parents who are blind, the blindness of one being due to one affection and that of the other to a different cause—it being seldom to be expected that the disorder in both should arise from one and the same cause—the liability to the transmission of blindness should be no more marked than in the case of unions of one sighted and one blind partner.

TABLE 91.—BLIND POPULATION, BY AGE WHEN VISION WAS LOST, CLASSIFIED ACCORDING TO VISION OF PARENTS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

AGE WHEN VISION WAS LOST	NUMBER						PER CENT DISTRIBUTION				
	Total [1]	Both parents reported blind	One parent only reported blind			Neither parent reported blind	Total	One parent only reported blind			Neither parent reported blind
			Total	Father blind	Mother blind			Total	Father blind	Mother blind	
Total	40,913	62	1,600	798	802	38,210	100.0	100.0	100.0	100.0	100.0
Born blind	3,978	17	161	93	68	3,672	10.0	10.3	11.9	8.7	9.8
Not born blind	35,832	41	1,407	690	717	33,791	90.0	89.7	88.1	91.3	90.2
Losing vision at age of—											
Less than 20 years	10,638	12	186	91	95	10,202	26.7	11.9	11.6	12.1	27.2
Less than 1 year	2,215	4	16	10	6	2,151	5.6	1.0	1.3	0.8	5.7
1 year	554	1	5	2	3	539	1.4	0.3	0.3	0.4	1.4
2 to 4 years	1,593	2	35	18	17	1,534	4.0	2.2	2.3	2.2	4.1
5 to 9 years	2,478	1	46	18	28	2,389	6.2	2.9	2.3	3.6	6.4
10 to 14 years	1,849	3	40	24	16	1,772	4.6	2.6	3.1	2.0	4.7
15 to 19 years	1,410	1	30	13	17	1,363	3.5	1.9	1.7	2.2	3.6
Age not definitely reported	539	----	14	6	8	454	1.4	0.9	0.8	1.0	1.2
Infancy	226	----	2	1	1	203	0.6	0.1	0.1	0.1	0.5
Childhood or youth	313	----	12	5	7	251	0.8	0.8	0.6	0.9	0.7
20 years or over	25,194	29	1,221	599	622	23,589	63.3	77.9	76.5	79.2	63.0
20 to 24 years	1,543	----	34	22	12	1,497	3.9	2.2	2.8	1.5	4.0
25 to 44 years [2]	6,977	11	212	122	90	6,685	17.5	13.5	15.6	11.5	17.8
45 to 64 years [2]	8,821	7	495	237	258	8,213	22.2	31.6	30.3	32.9	21.9
65 years or over [2]	7,853	11	480	218	262	7,194	19.7	30.6	27.8	33.4	19.2
Age not reported	1,103	4	32	15	17	747	------	------	------	------	------

[1] Includes those not reporting as to vision of parents.
[2] Included under the appropriate age groups are those reporting the period of life but not the exact age at which vision was lost. Of these, 75 became blind in early adult life (25 to 44), 108 in middle life (45 to 64), and 156 in old age (65 or over).

Only a slightly greater chance exists of a child being congenitally blind when a parent is blind than when a parent is not blind. Of blind persons with a blind parent, 10.3 per cent were born blind, while of persons not having blind parents, 9.8 per cent were born blind.[63] Heredity would thus seem to have but little connection, relatively, with blindness existing from birth, or congenital blindness. Most of the effects of heredity are manifest at later stages of life.

If there is a blind parent, the proportion of congenital blindness is greater when it is a blind father than when it is a blind mother, the respective percentages being 11.9 and 8.7.

As already stated, there appears from Table 91 a somewhat greater likelihood of a blind parent when blindness occurs in adult life than when it occurs at a younger period. Of those having a parent blind, 77.9 per cent lost their sight at 20 or over and 11.9 per cent under that age, while of those not having a parent blind the respective proportions are 63 per cent and 27.2 per cent. In fact, the higher the age of the loss of sight the greater seems the likelihood of the existence of a blind parent. With blindness occurring in late middle life or old age the proportions are materially higher for those having a blind parent than for those not having a blind parent. While a little over three-fifths (62.2 per cent)

[63] Among the congenitally blind and among the noncongenitally blind the proportions having a blind parent are but little different, being, respectively, 4.5 per cent and 4 per cent. As already pointed out, statistics with respect to congenital blindness are unsatisfactory, and to some extent unreliable. Congenital blindness is set down as a cause of blindness only when no specific cause can be determined, possibly representing only about one-half of the blindness reported as existing from birth. Some persons reported as born blind became so very shortly after birth; others born blind were not so discovered till somewhat later, and were wrongly reported as not born blind.

of the blind with a blind parent lost sight at 45 or over, only a little over two-fifths (41.1 per cent) of those without a blind parent lost it at such age. This situation is doubtless in large part to be accounted for by the appearance late in life of certain diseases of apparently hereditary nature, notably cataract and glaucoma.

The figures suggest that when blindness occurs before middle age and a blind parent is involved, such parent is somewhat more likely to be the father; when blindness occurs at a later time, the parent is more likely to be the mother. The matter is with little doubt affected by the fact, on the one hand, that females suffer to a greater extent than males from glaucoma, a disease of hereditary character and manifesting itself rather late in life, and by the fact, on the other hand, that females generally live to a relatively older age than males, or to a time when a disorder such as glaucoma may operate.

Table 92 gives the distribution by cause of blindness, for blind persons reporting as to blindness in parents, showing also whether the blind parent is the father or the mother.

The general diseases given are only those believed to have special hereditary significance, while the specific disorders of the eye are quite fully shown. By comparing the diseases having higher proportions in case of parental blindness than in the opposite case, there may be found, to some extent, which diseases have an effect upon blindness through hereditary operations. Those disorders, in the order of the apparent extent of the influence upon them of the existence of a parent who is blind—that is, in the order of the ratios between the proportions of the blind having a blind parent and the proportions not having a blind parent—are as follows: Progressive myopia, retinitis pigmentosa, detachment of the retina, cataract, glaucoma, old age, trachoma, neuralgia, exposure to heat, and sore eyes. With respect to congenital blindness the two proportions are not very different.

Of all the disorders mentioned, trachoma and cataract show a larger proportion when it is the father who is the blind parent. In the case of glaucoma, progressive myopia, atrophy of the optic nerve, old age, neuralgia, exposure to heat, and sore eyes, there are larger proportions for a blind mother. With the remaining disorders the proportions are practically identical.

The results as to the hereditary character of most of the foregoing disorders confirm what has been known in greater or less degree. The hereditary influence of cataract, glaucoma, the two retinal affections, especially retinitis pigmentosa, and progressive myopia have been duly recognized in scientific investigation. Neuralgia, as has already been indicated, was often erroneously reported for glaucoma. Blindness attributed to old age, as also previously observed, is really in great measure to be charged to cataract and glaucoma, both these diseases operating largely at that time of life, though with a certain form of cataract exposure to heat has some connection. The representation of both cataract and glaucoma among the affections of hereditary nature would be considerably enlarged but for the fact that they occur so often in the later years of life, or subsequent to the census reporting. Trachoma, together with sore eyes, being an infectious disease, may spread among several members of the same family without the involving of any hereditary factors.

The reasons for the variations in the proportions for certain affections as between a blind father and a blind mother are at present not altogether clear. To an extent the differences are due to the relatively greater prevalence of some affections with one sex than with the other. This may account, in part at least, for the larger proportion for glaucoma, together with neuralgia and old age, in the case of females, because of their greater longevity.

In Table 93 are given the number and the percentage distribution for the same diseases, according to whether or not there are blind brothers or blind sisters.

TABLE 92.—BLIND POPULATION REPORTING AS TO VISION OF PARENTS, CLASSIFIED BY CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

CAUSE OF BLINDNESS	NUMBER						PER CENT DISTRIBUTION [1]				
	Total [2]	Both parents reported blind	One parent only reported blind			Neither parent reported blind	Total	One parent only reported blind			Neither parent reported blind
			Total	Father blind	Mother blind			Total	Father blind	Mother blind	
All causes	40,913	62	1,600	798	802	38,210	-----	-----	-----	-----	-----
Cause reported	35,788	57	1,351	672	679	33,749	100.0	100.0	100.0	100.0	100.0
Specific affection of the eye	13,816	20	713	350	363	12,816	38.6	52.8	52.1	53.5	38.0
Diseases of the conjunctiva	2,192	4	49	29	20	2,065	6.1	3.6	4.3	2.9	6.1
Trachoma (granular eyelids)	555	3	29	18	11	506	1.6	2.1	2.7	1.6	1.5
Ophthalmia neonatorum	1,198	1	7	4	3	1,138	3.3	0.5	0.6	0.4	3.4
All other	439	----	13	7	6	421	1.2	1.0	1.0	0.9	1.2
Diseases of the cornea	440	----	13	6	7	414	1.2	1.0	0.9	1.0	1.2
Diseases of the iris	240	----	6	5	1	233	0.7	0.4	0.7	0.1	0.7
Diseases of the choroid	66	----	2	-----	2	60	0.2	0.1	-----	0.3	0.2
Glaucoma	1,932	2	126	55	71	1,787	5.4	9.3	8.2	10.5	5.3
Diseases of the retina	497	----	24	12	12	469	1.4	1.8	1.8	1.8	1.4
Retinitis pigmentosa	44	----	4	2	2	39	0.1	0.3	0.3	0.3	0.1
Retinitis hemorrhagica	104	----	3	2	1	101	0.3	0.2	0.3	0.1	0.3
Detachment of the retina	177	----	13	6	7	163	0.5	1.0	0.9	1.0	0.5
All other	172	----	4	2	2	166	0.5	0.3	0.3	0.3	0.5
Diseases of the optic nerve	2,458	2	91	43	48	2,331	6.9	6.7	6.4	7.1	6.9
Atrophy of the optic nerve	1,756	2	67	30	37	1,663	4.9	5.0	4.5	5.4	4.9
All other	702	----	24	13	11	668	2.0	1.8	1.9	1.6	2.0
Cataract	4,896	9	349	176	173	4,441	13.7	25.8	26.2	25.5	13.2
Amaurosis and other disturbances of vision	57	1	1	1	-----	54	0.2	0.1	0.1	-----	0.2
Progressive myopia	118	----	12	2	10	104	0.3	0.9	0.3	1.5	0.3
Cancer and other neoplasms	247	----	5	2	3	242	0.7	0.4	0.3	0.4	0.7
All other diseases of the eye	222	1	4	2	2	212	0.6	0.3	0.3	0.3	0.6
Combination of two or more diseases of the eye	451	1	31	17	14	404	1.3	2.3	2.5	2.1	1.2
Diseases other than specific affection of the eye	5,623	8	125	61	64	5,415	15.7	9.3	9.1	9.4	16.0
Diseases of the head, other than meningitis	384	1	6	2	4	373	1.1	0.4	0.3	0.6	1.1
Rheumatism	184	----	1	1	-----	182	0.5	0.1	0.1	-----	0.5
Syphilis	184	----	1	1	-----	163	0.5	0.1	0.1	-----	0.5
Locomotor ataxia	68	----	2	-----	2	66	0.2	0.1	-----	0.3	0.2
All other general diseases	4,803	7	115	57	58	4,631	13.4	8.5	8.5	8.5	13.7
Accident or other injury (including sympathetic ophthalmia)	5,913	3	109	63	46	5,702	16.5	8.1	9.4	6.8	16.9
Malformations	142	1	5	1	4	132	0.4	0.4	0.1	0.6	0.4
All other definitely reported causes	839	----	20	10	10	815	2.3	1.5	1.5	1.5	2.4
Causes indefinitely or inaccurately reported	9,119	25	369	181	188	8,549	25.5	27.3	26.9	27.7	25.3
Congenital (cause not stated)	2,635	12	94	53	41	2,451	7.4	7.0	7.9	6.0	7.3
Old age	770	3	43	15	28	688	2.2	3.2	2.2	4.1	2.0
Neuralgia	548	----	25	10	15	521	1.5	1.9	1.5	2.2	1.5
Exposure to heat	507	----	21	8	13	476	1.4	1.6	1.2	1.9	1.4
Sore eyes	497	2	21	8	13	468	1.4	1.6	1.2	1.9	1.4
All other	4,162	8	165	87	78	3,945	11.6	12.2	12.9	11.5	11.7
Combination of different classes of causes	336	----	10	6	4	320	0.9	0.7	0.9	0.6	0.9
Cause unknown or not reported	5,125	5	249	126	123	4,461	-----	-----	-----	-----	-----

[1] Not shown for those reporting both parents blind, base being less than 100.
[2] Includes those not reporting as to vision of parents.

TABLE 93.—BLIND POPULATION REPORTING AS TO VISION OF BROTHERS OR SISTERS, CLASSIFIED BY CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	Per cent distribution of blind population	NUMBER		PER CENT DISTRIBUTION	
		Reporting blind brothers or blind sisters	Reporting brothers or sisters, none blind or none reported blind	Reporting blind brothers or blind sisters	Reporting brothers or sisters, none blind or none reported blind
All causes		3,537	32,802		
Cause reported	100.0	3,006	29,074	100.0	100.0
Specific affection of the eye	38.6	1,258	11,017	41.8	37.9
Diseases of the conjunctiva	6.1	133	1,616	4.4	5.6
Trachoma (granular eyelids)	1.6	57	462	1.9	1.6
Ophthalmia neonatorum	3.3	53	803	1.8	2.8
All other	1.2	23	351	0.8	1.2
Diseases of the cornea	1.2	27	332	0.9	1.1
Diseases of the iris	0.7	7	219	0.2	0.8
Diseases of the choroid	0.2	16	37	0.5	0.1
Glaucoma	5.4	154	1,628	5.1	5.6
Diseases of the retina	1.4	52	410	1.7	1.4
Retinitis pigmentosa	0.1	17	25	0.6	0.1
Retinitis hemorrhagica	0.3	4	94	0.1	0.3
Detachment of the retina	0.5	16	148	0.5	0.5
All other	0.5	15	143	0.5	0.5
Diseases of the optic nerve	6.9	231	2,016	7.7	6.9
Atrophy of the optic nerve	4.9	155	1,443	5.2	5.0
All other	2.0	76	573	2.5	2.0
Cataract	13.7	519	3,906	17.3	13.4
Amaurosis and other disturbances of vision	0.2	21	27	0.7	0.1
Progressive myopia	0.3	19	86	0.6	0.3
Cancer and other neoplasms	0.7	7	224	0.2	0.8
All other diseases of the eye	0.6	31	148	1.0	0.5
Combination of two or more diseases of the eye	1.3	41	368	1.4	1.3
Diseases other than specific affection of the eye	15.7	336	4,826	11.2	16.6
Diseases of the head, other than meningitis	1.1	18	334	0.6	1.1
Rheumatism	0.5	6	163	0.2	0.6
Syphilis	0.5	9	134	0.3	0.5
Locomotor ataxia	0.2	3	59	0.1	0.2
All other general diseases	13.4	300	4,136	10.0	14.2
Accident or other injury (including sympathetic ophthalmia)	16.5	167	5,199	5.6	17.9
Malformations	0.4	26	91	0.9	0.3
All other definitely reported causes	2.3	16	718	0.5	2.5
Causes indefinitely or inaccurately reported	25.5	1,183	6,933	39.4	23.8
Congenital (cause not stated)	7.4	686	1,499	22.8	5.2
Old age	2.2	44	645	1.5	2.2
Neuralgia	1.5	56	458	1.9	1.6
Exposure to heat	1.4	29	448	1.0	1.5
Sore eyes	1.4	42	410	1.4	1.4
All other	11.6	326	3,473	10.8	11.9
Combination of different classes of causes	0.9	20	290	0.7	1.0
Cause unknown or not reported		531	3,728		

The causes showing larger proportions in the case where such relatives exist than in the opposite case are for the most part specific affections of the eye. Such disorders, in the order of the relative differences in the respective proportions, are amaurosis and other disturbances of vision, retinitis pigmentosa, diseases of the choroid, progressive myopia, cataract, trachoma, and atrophy of the optic nerve (besides other affections of the optic nerve). An excess in the proportions

where blind brothers or sisters exist is shown also for malformations and neuralgia, and for congenital causes not otherwise stated, in the latter case the ratio between the respective proportions being 4 to 1.

In Table 94 is presented a similar distribution by cause correlated with figures showing the existence of blind children.

TABLE 94.—BLIND POPULATION REPORTING AS TO VISION OF CHILDREN, CLASSIFIED BY CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	Per cent distribution of blind population	NUMBER		PER CENT DISTRIBUTION	
		Reporting blind children	Reporting children, none blind or none reported blind	Reporting blind children	Reporting children, none blind or none reported blind
All causes	----------	348	20,011	----------	----------
Cause reported	100.0	300	17,516	100.0	100.0
Specific affection of the eye	38.6	126	7,568	42.0	43.2
Diseases of the conjunctiva	6.1	12	539	4.0	3.1
Trachoma (granular eyelids)	1.6	9	319	3.0	1.8
Ophthalmia neonatorum	3.3	1	66	0.3	0.4
All other	1.2	2	154	0.7	0.9
Diseases of the cornea	1.2	3	158	1.0	0.9
Diseases of the iris	0.7	----------	137	----------	0.8
Diseases of the choroid	0.2	----------	14	----------	0.1
Glaucoma	5.4	18	1,396	6.0	8.0
Diseases of the retina	1.4	5	268	1.7	1.5
Retinitis pigmentosa	0.1	----------	17	----------	0.1
Retinitis hemorrhagica	0.3	2	65	0.7	0.4
Detachment of the retina	0.5	1	96	0.3	0.5
All other	0.5	2	90	0.7	0.5
Diseases of the optic nerve	6.9	19	1,362	6.3	7.8
Atrophy of the optic nerve	4.9	13	926	4.3	5.3
All other	2.0	6	436	2.0	2.5
Cataract	13.7	59	3,201	19.7	18.3
Amaurosis and other disturbances of vision	0.2	1	19	0.3	0.1
Progressive myopia	0.3	1	51	0.3	0.3
Cancer and other neoplasms	0.7	2	97	0.7	0.6
All other diseases of the eye	0.6	2	63	0.7	0.4
Combination of two or more diseases of the eye	1.3	4	263	1.3	1.5
Diseases other than specific affection of the eye	15.7	39	2,331	13.0	13.3
Diseases of the head, other than meningitis	1.1	1	100	0.3	0.6
Rheumatism	0.5	1	119	0.3	0.7
Syphilis	0.5	----------	56	----------	0.3
Locomotor ataxia	0.2	2	37	0.7	0.2
All other general diseases, not specific affection of the eye	13.4	35	2,019	11.7	11.5
Accident or other injury (including sympathetic ophthalmia)	16.5	29	2,885	9.7	16.5
Malformations	0.4	----------	4	----------	(1)
All other definitely reported causes	2.2	3	505	1.0	2.9
Causes indefinitely or inaccurately reported	25.5	97	4,013	32.3	22.9
Congenital (cause not stated)	7.4	14	135	4.7	0.8
Old age	2.2	10	656	3.3	3.7
Neuralgia	1.5	11	417	3.7	2.4
Exposure to heat	1.4	6	370	2.0	2.1
Sore eyes	1.4	9	218	3.0	1.2
All other	11.6	47	2,217	15.7	12.7
Combination of different classes of causes	0.9	6	210	2.0	1.2
Cause unknown or not reported	----------	48	2,495	----------	----------

[1] Less than one-tenth of 1 per cent.

The figures are not so conclusive here as in preceding tables, though larger proportions where blind children are reported are seen in certain cases. The excess does not appear in any of the general classes of causes except locomotor ataxia and those indefinitely or inaccurately reported. Definite disorders, however, in which there are larger proportions when blind children are reported than when they are not are amaurosis, sore eyes, trachoma, retinitis hemorrhagica, and other neoplasms, diseases of the cornea, and cataract. The difference is greatest, however, in the case of congenital blindness, the proportion in the one case being almost six times as large as in the other.

In the combination or the correlation of the results with respect to the three kinds of blind relatives just considered there may appear the general influences of heredity upon the different disorders responsible for blindness. On the whole, a not inconsiderable though limited degree of similarity is manifested in the results for the several groups. With most of the causes the amount of blindness does not seem to be greatly affected by the existence of blind relatives. The causes found to operate the more extensively among persons with blind relatives, consequently showing their hereditary nature, are chiefly specific affections of the eye, particularly of the crystalline lens and retina, and in addition amaurosis and myopia, and to a less extent affections of the optic nerve, choroid, and cornea. General diseases are for the most part without effect in the matter except neuralgia, closely allied to glaucoma. The leading exceptions, however, are diseases of venereal origin.

Only three disorders of hereditary tendencies are found with all three classes of blind relatives—cataract, neuralgia, and trachoma. The importance of heredity as a factor in the causation of blindness from cataract is here accentuated. Neuralgia is in large part erroneously reported for glaucoma, as stated in connection with parental blindness, and the hereditary influences of that disease are therefore attested anew. Both cataract and glaucoma would show more pronounced hereditary tendencies but for the fact that they frequently appear late in life, and blindness from these causes may not have developed in relatives up to the date of the census. Trachoma is largely reported where relatives are blind, not because of any hereditary propensities in its case, but because of its prevalence among several different members of one family, as a result of infection.

Progressive myopia and retinitis are in two categories, those for parents and for brothers or sisters. Like cataract and glaucoma, both of these disorders might indicate more fully their hereditary connection if they occurred more often in the early years of life, or with respect to children. In two categories, those for parents and for children, is sore eyes. This complaint is in no small part trachoma, and its presence is to be explained very largely by infection. Amaurosis and causes reported as congenital without further designation appear in two categories, brothers or sisters and children. In both these relationships the influences of hereditary action are striking.

The remaining disorders specified as having larger proportions in the case of blind relatives than in the opposite case are found each in but a single category. With respect to blindness of a parent only are set down detachment of retina, glaucoma, old age, and exposure to heat; with respect to brothers or sisters only, diseases of the choroid, malformations, and atrophy of the optic nerve (and other affections of the optic nerve); and with respect to children only, locomotor ataxia, retinitis hemorrhagica, cancer and other neoplasms, and diseases of the cornea.

The extent of hereditary influences upon certain of the disorders enumerated, or even the inclusion of one or two in any degree, may be a matter of some

uncertainty, especially in view of the small numbers sometimes involved, a circumstance that serves to deprive them of the fullest significance. In certain cases, also, the differences in the two sets of proportions—the proportion indicating the presence of blind relatives and the proportion where there are none—are very small. Again, increased proportions for some disorders in the case of blind relatives are the reflections of smaller proportions for others, generally of non-hereditary character. On the other hand, some disorders would doubtless display more decided hereditary tendencies if these had developed at an earlier stage in life, or at a time when report as to them was possible.

Though blindness of hereditary character constitutes, all told, a relatively small amount of blindness in general, operating through a limited number of diseases, yet this portion presents a serious problem.[64] There are certain families in society deeply affected with blindness, which passes from generation to generation, appearing not only in a direct line but in indirect or collateral lines as well. The exact connection of heredity with blindness, or the processes by which heredity acts, have been little revealed to our present knowledge. Perhaps to some extent such blindness is of particular forms, manifesting itself in particular diseases or other disorders. Perhaps the main factors involved are not so much the immediate or direct transmission of blindness itself, but rather the passing on of some special defect or infirmity—either an anomaly centering in the eye itself, or possibly an anomaly of wider ramification—or of a certain predisposition in the existence of an abnormal physical condition, affecting in some manner the organ of sight and sooner or later leading to blindness, or of a tendency to some disease of which blindness is but a result or symptom. The whole question of the connection between blindness and heredity is a large one, belonging alike to eugenics and medical science. Much that is now hidden will doubtless be unfolded to us in the future.

Relationship of parents.—Akin to, or perhaps rather a part of, the question of the effect of heredity upon blindness is that of the effect thereupon of consanguineous marriages. This effect is revealed in some measure by the extent to which persons with blind relatives have parents who are cousins. Table 95 gives, according to whether parents are first cousins or not, the number and percentage having one or both parents blind, the number and percentage having blind brothers or sisters, and the number and percentage of married, widowed, or divorced persons having blind children.

There is a larger proportion of the blind in each of these groups when parents are cousins than when they are not. The difference is greatest in the case of blind brothers or sisters, the proportion in the former case being over four times the proportion in the latter, or 39.4 per cent, as against 9 per cent. With a parent blind the difference between the two cases is slight, or 4.4 per cent in the one, and 4.1 per cent in the other. With blind children the proportion in the one case is 2.3 per cent, as against 1.6 per cent in the other. The proportion of the blind having blind brothers or sisters and also having parents who are cousins is six times as great as the corresponding proportion for those not having blind brothers or sisters but having parents who are cousins, or 8.8 per cent, as against 1.4 per cent. The respective proportions as to a parent blind are 2.3 per cent and 2.1 per cent.[65] The respective proportions as to blind children are 1.9 per

[64] On the proportion which blindness of hereditary character constitutes of all blindness, see Annals of Ophthalmology, xviii., 1909, pp. 1, 245, 489, 755. On the matter of hereditary eye diseases, see Eugenics Record Office, Bulletin No. 21, Bibliography of Hereditary Eye Defects (collected by Dr. Lucien Howe), 1921; American Encyclopedia and Dictionary of Ophthalmology, 1917, IV, p. 2776; VII, p. 5145; VIII, p. 5812; International System of Ophthalmic Practice, 1910–1918, *passim;* Harry Best, The Blind: Their Condition and the Work Being Done for Them in the United States, 1919.

[65] Among 62 persons with both parents blind 1 is reported as having parents first cousins.

cent and 1.3 per cent. The situation as to consanguineous marriages when a blind parent or blind children are concerned is doubtless to be explained, in some part at least, by the smallness of the figures involved.

TABLE 95.—BLIND POPULATION REPORTING AS TO RELATIONSHIP OF PARENTS, CLASSIFIED ACCORDING TO VISION OF PARENTS, BROTHERS OR SISTERS, AND CHILDREN, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

VISION OF PARENTS, BROTHERS OR SISTERS, AND CHILDREN	BLIND PERSONS REPORTING AS TO RELATIONSHIP OF PARENTS		PARENTS FIRST COUSINS			PARENTS NOT FIRST COUSINS		
	Total number	Per cent distribution	Number	Per cent distribution	Per cent of total	Number	Per cent distribution	Per cent of total
Blind persons reporting as to vision of parents, total	39,027	100.0	816	100.0	2.1	38,211	100.0	97.9
Reporting one or both parents blind	1,593	4.1	36	4.4	2.3	1,557	4.1	97.7
Neither parent reported blind	37,434	95.9	780	95.6	2.1	36,654	95.9	97.9
Blind persons reporting brothers or sisters, total	35,556	100.0	766	100.0	2.2	34,790	100.0	97.8
Reporting blind brothers or sisters	3,435	9.7	302	39.4	8.8	3,133	9.0	91.2
Reporting brothers or sisters, but not blind	32,121	90.3	464	60.6	1.4	31,657	91.0	98.6
Blind persons reporting children, total	19,559	100.0	261	100.0	1.3	19,298	100.0	98.7
Reporting blind children	321	1.6	6	2.3	1.9	315	1.6	98.1
Reporting children, but not blind	19,238	98.4	255	97.7	1.3	18,983	98.4	98.7

Table 96 shows, according to the several race and nativity classes, the number and proportion of the blind having parents who are first cousins.

TABLE 96.—BLIND POPULATION REPORTING AS TO RELATIONSHIP OF PARENTS, CLASSIFIED BY RACE AND NATIVITY, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

RACE AND NATIVITY	BLIND PERSONS REPORTING AS TO RELATIONSHIP OF PARENTS		PARENTS FIRST COUSINS			PARENTS NOT FIRST COUSINS		
	Total number	Per cent distribution	Number	Per cent distribution	Per cent of total	Number	Per cent distribution	Per cent of total
All classes	39,184	100.0	821	100.0	2.1	38,363	100.0	97.9
White	35,185	89.8	795	96.8	2.3	34,390	89.6	97.7
Native	29,149	74.4	725	88.3	2.5	28,424	74.1	97.5
Foreign-born	6,036	15.4	70	8.5	1.2	5,966	15.6	98.8
Negro	3,724	9.5	20	2.4	0.5	3,704	9.7	99.5
Indian	250	0.6	6	0.7	2.4	244	0.6	97.6
Other colored	25	0.1	-------	-------	-------	25	0.1	(1)

[1] Per cent not shown, base being less than 100.

For all classes combined, the proportion having first cousins for parents is 2.1 per cent—a proportion probably considerably in excess of that for the population at large.[66] The proportion is highest for native whites, 2.5 per cent, and next

[66] The proportion of marriages in the general population in the United States which are consanguineous does not average over 1 per cent. It varies from 0.5 per cent to 5 per cent, the latter proportion being found only in isolated sections. If consanguineous marriages include those of both first and second cousins, the proportion is probably between 2 per cent and 2.5 per cent. Consanguineous marriages are relatively decreasing. G. B. L. Arner, Consanguineous Marriages, 1908.

highest for Indians, 2.4 per cent. Foreign-born whites have a proportion of 1.2 per cent, and Negroes of only 0.5 per cent.[67] The reasons for these differences among the several groups are not clear, beyond the general likelihood that the proportion would be smaller for the foreign born.

In Table 97 are given the number and the percentage distribution of the blind, according to whether parents are first cousins, by age when vision was lost.

TABLE 97.—BLIND POPULATION, BY AGE WHEN VISION WAS LOST, CLASSIFIED ACCORDING TO RELATIONSHIP OF PARENTS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

AGE WHEN VISION WAS LOST	NUMBER				PER CENT DISTRIBUTION		
	Total	Parents first cousins	Parents not first cousins	Not reporting as to relationship of parents	Total	Parents first cousins	Parents not first cousins
Total	40,913	821	38,363	1,729			
Age reported	39,810	806	37,639	1,365	100.0	100.0	100.0
Born blind	3,978	200	3,517	261	10.0	24.8	9.3
Not born blind	35,832	606	34,122	1,104	90.0	75.2	90.7
Losing vision at age of—							
Less than 20 years	10,638	215	10,000	423	26.7	26.7	26.6
Less than 1 year	2,215	17	2,119	79	5.6	2.1	5.6
1 year	554	13	524	17	1.4	1.6	1.4
2 to 4 years	1,593	33	1,507	53	4.0	4.1	4.0
5 to 9 years	2,478	54	2,344	80	6.2	6.7	6.2
10 to 14 years	1,849	52	1,739	58	4.6	6.5	4.6
15 to 19 years	1,410	34	1,341	35	3.5	4.2	3.6
Age not definitely reported	539	12	426	101	1.4	1.5	1.1
Infancy	226	7	188	31	0.6	0.9	0.5
Childhood or youth	313	5	238	70	0.8	0.6	0.6
20 years of age or over	25,194	391	24,122	681	63.3	48.5	64.1
20 to 24 years	1,543	153	1,482	27	3.9	19.0	3.9
25 to 44 years [1]	6,977	34	6,666	158	17.5	4.2	17.7
45 to 64 years [1]	8,821	134	8,463	224	22.2	16.6	22.5
65 years or over [1]	7,853	70	7,511	272	19.7	8.7	20.0
Age not reported	1,103	15	724	364			

[1] Included under the appropriate age groups are those who reported the period of life, but not the exact age at which vision was lost. Of these, 75 became blind in early adult life (25 to 44); 108 in middle life (45 to 64); and 156 in old age (65 or over).

That some sort of connection exists between consanguineous marriages and congenital blindness seems evident from the fact that the proportion born blind is between two and three times as great for those whose parents are first cousins as it is for those whose parents are not so related, the respective percentages being 24.8 and 9.3. It is also to be observed that the proportion of congenital blindness in which consanguineous marriages are involved is 5.4 per cent, whereas, as we have just seen (Table 96), the proportion of all blindness in which such marriages are involved is 2.1 per cent. For persons becoming blind in the earlier years of life (except the first year), the proportions are likewise generally greater for those whose parents are cousins. This would seem to indicate that whatever the effects produced by consanguineous marriages, they predominate at birth, and also, in some degree, in childhood and youth.

In Table 98 are given the number and the percentage distribution of the blind by different causes of blindness, according to whether or not parents are first cousins.

[67] In certain schools for the blind the proportion of pupils reported as having parents who are first cousins is 2 or 3 per cent (in one case 17 per cent).

TABLE 98.—BLIND POPULATION, BY REPORTED CAUSE OF BLINDNESS, CLASSIFIED ACCORDING TO RELATIONSHIP OF PARENTS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	NUMBER				PER CENT DISTRIBUTION		
	Total	Parents first cousins	Parents not first cousins	Not reporting as to relationship of parents	Total	Parents first cousins	Parents not first cousins
All causes	40,913	821	38,363	1,729			
Cause reported	35,788	698	33,913	1,177	100.0	100.0	100.0
Specific affection of the eye	13,816	222	13,098	496	38.6	31.8	38.6
Diseases of the conjunctiva	2,192	25	2,029	138	6.1	3.6	6.0
Trachoma (granular eyelids)	555	7	513	35	1.6	1.0	1.5
Ophthalmia neonatorum	1,198	10	1,099	89	3.3	1.4	3.2
All other	439	8	417	14	1.2	1.1	1.2
Diseases of the cornea	440	6	412	22	1.2	0.9	1.2
Diseases of the iris	240		238	2	0.7		0.7
Diseases of the choroid	66	2	55	9	0.2	0.3	0.2
Glaucoma	1,932	22	1,884	26	5.4	3.2	5.6
Diseases of the retina	497	9	476	12	1.4	1.3	1.4
Retinitis pigmentosa	44	2	40	2	0.1	0.3	0.1
Retinitis hemorrhagica	104	3	100	1	0.3	0.4	0.3
Detachment of the retina	177		175	2	0.5		0.5
All other	172	4	161	7	0.5	0.6	0.5
Diseases of the optic nerve	2,458	50	2,335	73	6.9	7.2	6.9
Atrophy of the optic nerve	1,756	37	1,662	57	4.9	5.3	4.9
All other	702	13	673	16	2.0	1.9	2.0
Cataract	4,896	72	4,651	173	13.7	10.3	13.7
Amaurosis and other disturbances of vision	57	10	46	1	0.2	1.4	0.1
Progressive myopia	118	5	109	4	0.3	0.7	0.3
Cancer and other neoplasms	247	1	244	2	0.7	0.1	0.7
All other diseases of the eye	222	6	203	13	0.6	0.9	0.6
Combination of two or more diseases of the eye	451	14	416	21	1.3	2.0	1.2
Diseases other than specific affection of the eye	5,623	102	5,384	137	15.7	14.6	15.9
Diseases of the head, other than meningitis	384	7	366	11	1.1	1.0	1.1
Rheumatism	184	4	177	3	0.5	0.6	0.5
Syphilis	184	2	154	28	0.5	0.3	0.5
Locomotor ataxia	68		68		0.2		0.2
All other	4,803	89	4,619	95	13.4	12.8	13.6
Accident or other injury (including sympathetic ophthalmia)	5,913	65	5,679	169	16.5	9.3	16.7
Malformations	142	9	122	11	0.4	1.3	0.4
All other definitely reported causes	839	16	810	13	2.3	2.3	2.4
Causes indefinitely or inaccurately reported	9,119	276	8,499	344	25.5	39.5	25.1
Congenital (cause not stated)	2,635	155	2,334	146	7.4	22.2	6.9
Old age	770	5	712	53	2.2	0.7	2.1
Neuralgia	548	12	527	9	1.5	1.7	1.6
Exposure to heat	507	6	481	20	1.4	0.9	1.4
Sore eyes	497	23	456	18	1.4	3.3	1.3
All other	4,162	75	3,989	98	11.6	10.7	11.8
Combination of different classes of causes	336	8	321	7	0.9	1.1	0.9
Cause unknown or not reported	5,125	123	4,450	552			

Causes showing larger proportions when parents are first cousins than when they are not first cousins, in the order of the ratios between the respective proportions, or in the order of the apparent extent of the influence upon them of consanguineous marriages, are as follows: Amaurosis and allied disorders, malformations, congenital blindness, retinitis pigmentosa, sore eyes, progressive myopia, diseases of the choroid, retinitis hemorrhagica, rheumatism, atrophy of the optic nerve, and neuralgia. The results here are in but limited agreement with those shown for the several causes of blindness correlated with the existence of blind relatives. Rheumatism was not included in the former case. The reason for the noninclusion of cataract and glaucoma in the category of diseases influenced by consanguineous marriages may be that their effects, being the more pronounced late in life, have not as yet developed. To some extent, also, glaucoma is represented by neuralgia. The exact connection of blindness and consanguineous marriages through the operation of different specific disorders is far from being known at present.

The statistics given showing the connection of blindness and consanguineous marriages are specific examples of a law of wide application, namely, that in the blood relationship of parents, the possibilities are intensified of the perpetuation of a given strain or defect—a law which holds true in respect to the transmission of blindness. In the marriage of first cousins the chances are at least doubled of the offspring acquiring the characteristics, perhaps latent, of a parent, or of the reappearance of a family predisposition.

BLIND DEAF-MUTES

According to the special schedules returned, there are 169 blind deaf-mutes in the United States.[68] Figures for these are included in the preceding tables, but separate treatment is also given in Table 110 (p. 190), which shows their detailed distribution.

In the East North Central division are 50; in the Middle Atlantic, 30; in the West North Central, 26; in the South Atlantic, 25; in the West South Central, 13; in the New England, 12; in the East South Central, 9; in the Pacific, 3; and in the Mountain, 1. In New York there are 20; in Wisconsin, 16; in Ohio and Illinois, each 13; and in Missouri, 11.

Of the blind deaf-mutes, 79 are male and 90 female. There are 159 white and 10 colored. Of the whites, 150 are native; of the colored, 9 are Negro.

By age, 45 are under 25; 58 from 25 to 49; 54 from 50 to 74; and 12 over 74. With 33 blindness was congenital, and with 88 deafness. Only 7 lost their hearing after 9 years of age, while 74 lost their sight after that age. In fact, most of the cases are of deaf-mutes who later become blind, their blindness having apparently no relation to their deafness.

The main causes of deafness among blind deaf-mutes, apart from congenital deafness, are meningitis and scarlet fever. With the exception of these two diseases and of measles, brain fever, catarrh, abscess in the head, and typhoid fever, no specific cause is represented more than once. The noncongenital causes of blindness are more varied. Meningitis, cataract, and scarlet fever are the leading ones. With the exception of these and of accidents from flying objects, brain fever, measles, catarrh, glaucoma, corneal ulcer, typhoid fever, and epilepsy, no specific cause is found in more than a single instance.

In no case were both parents blind deaf-mutes, though in one case both parents were deaf. In two cases one parent was blind, and in three cases one parent was deaf, the other parent in these cases being free from either blindness or deafness. Of the 159 persons reporting brothers or sisters, there are 23 with both blind and deaf brothers or sisters, 23 with only deaf brothers or sisters, and 6 with only blind brothers or sisters. Of 21 persons reporting children, there are 2 reporting deaf children. In 22 cases parents were first cousins. Among males only 12 blind deaf-mutes had ever been married, and among females only 9.

[68] It is possible that the full number in the United States is somewhat larger. No accurate statement on the subject can be given. Many of the original returns of enumerators have proved erroneous.

DETAILED TABLES

TABLE 99.—BLIND POPULATION, CLASSIFIED ACCORDING TO RACE, NATIVITY, AND SEX, BY DIVISIONS AND STATES: 1920

[Figures include only blind persons returning special schedules]

DIVISION AND STATE	ALL CLASSES			WHITE									COLORED								
				Total			Native			Foreign-born			Total [1]			Negro			Indian		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	M.	F.
UNITED STATES	40,913	23,977	16,936	36,640	21,330	15,310	30,313	17,451	12,862	6,327	3,879	2,448	4,273	2,647	1,626	3,936	2,442	1,494	308	182	126
GEOGRAPHIC DIVISIONS:																					
New England	4,184	2,311	1,873	4,108	2,277	1,831	3,004	1,636	1,368	1,104	641	463	76	34	42	65	31	34	11	3	8
Middle Atlantic	7,807	4,430	3,377	7,510	4,243	3,267	5,824	3,225	2,599	1,686	1,018	668	297	187	110	293	185	108	3	2	1
East North Central	10,253	5,924	4,329	9,797	5,654	4,143	8,012	4,568	3,444	1,785	1,086	699	456	270	186	405	245	160	44	19	25
West North Central	4,881	2,905	1,976	4,614	2,747	1,867	3,786	2,221	1,565	828	526	302	267	158	109	220	131	89	47	27	20
South Atlantic	4,594	2,778	1,816	3,122	1,870	1,252	3,000	1,795	1,205	122	75	47	1,472	908	564	1,458	899	559	12	8	4
East South Central	3,371	2,062	1,309	2,476	1,476	1,000	2,427	1,443	984	49	33	16	895	586	309	887	581	306	8	5	3
West South Central	2,716	1,611	1,105	2,105	1,231	874	1,990	1,153	837	115	78	37	611	380	231	561	346	215	45	30	15
Mountain	1,400	887	513	1,296	820	476	1,067	668	399	229	152	77	104	67	37	23	12	11	78	54	24
Pacific	1,707	1,069	638	1,612	1,012	600	1,203	742	461	409	270	139	95	57	38	24	12	12	60	34	26
NEW ENGLAND:																					
Maine	491	281	210	489	281	208	427	244	183	62	37	25	2	------	2	------	------	------	2	-----	2
New Hampshire	337	189	148	337	189	148	279	157	122	58	32	26	------	------	------	------	------	------	------	------	------
Vermont	152	84	68	152	84	68	128	70	58	24	14	10	------	------	------	------	------	------	------	------	------
Massachusetts	2,381	1,267	1,114	2,322	1,240	1,082	1,582	817	765	740	423	317	59	27	32	53	25	28	6	2	4
Rhode Island	190	97	93	184	95	89	129	64	65	55	31	24	6	2	4	4	1	3	2	1	1
Connecticut	633	393	240	624	388	236	459	284	175	165	104	61	9	5	4	8	5	3	1	-----	1
MIDDLE ATLANTIC:																					
New York	3,414	1,865	1,549	3,320	1,804	1,516	2,441	1,331	1,110	879	473	406	94	61	33	92	60	32	2	1	1
New Jersey	921	517	404	870	481	389	667	354	313	203	127	76	51	36	15	51	36	15	-----	-----	-----
Pennsylvania	3,472	2,048	1,424	3,320	1,958	1,362	2,716	1,540	1,176	604	418	186	152	90	62	150	89	61	1	1	-----
EAST NORTH CENTRAL:																					
Ohio	3,269	1,881	1,388	3,076	1,763	1,313	2,649	1,505	1,144	427	258	169	193	118	75	187	113	74	-----	-----	-----
Indiana	1,833	1,063	770	1,758	1,022	736	1,630	939	691	128	83	45	75	41	34	74	40	34	1	1	-----
Illinois	2,693	1,526	1,167	2,577	1,457	1,120	2,072	1,172	900	505	285	220	116	69	47	111	68	43	5	1	4
Michigan	1,346	778	568	1,308	752	556	966	541	425	342	211	131	38	26	12	27	19	8	10	6	4
Wisconsin	1,112	676	436	1,078	660	418	695	411	284	383	249	134	34	16	18	6	5	1	28	11	17

WEST NORTH CENTRAL:																					
Minnesota	713	459	254	692	448	244	428	268	160	264	180	84	21	11	10	4	2	2	17	9	8
Iowa	965	561	404	949	551	398	785	452	333	164	99	65	16	10	6	15	10	5	1	------	1
Missouri	1,742	984	758	1,609	908	701	1,458	824	634	151	84	67	133	76	57	132	76	56	1	------	1
North Dakota	121	73	48	119	72	47	63	34	29	56	38	18	2	1	1	------	------	------	2	1	1
South Dakota	152	95	57	134	82	52	94	57	37	40	25	15	18	13	5	------	------	------	18	13	5
Nebraska	329	194	135	316	188	128	249	146	103	67	42	25	13	6	7	5	2	3	8	4	4
Kansas	859	539	320	795	498	297	709	440	269	86	58	28	64	41	23	64	41	23	------	------	------
SOUTH ATLANTIC:																					
Delaware	123	79	44	98	64	34	92	61	31	6	3	3	25	15	10	25	15	10	------	------	------
Maryland	597	367	230	448	273	175	384	237	147	64	36	28	149	94	55	149	94	55	------	------	------
District of Columbia	197	121	76	156	96	60	134	78	56	22	18	4	41	25	16	41	25	16	------	------	------
Virginia	894	562	332	542	350	192	530	340	190	12	10	2	352	212	140	349	210	139	2	2	------
West Virginia	440	266	174	414	252	162	411	249	162	3	3	------	26	14	12	26	14	12	------	------	------
North Carolina	853	484	369	610	337	273	607	336	271	3	1	2	243	147	96	235	141	94	7	5	2
South Carolina	348	211	137	194	117	77	194	117	77	------	------	------	154	94	60	152	94	58	2	------	2
Georgia	841	512	329	463	269	194	461	269	192	2	------	2	378	243	135	378	243	135	------	------	------
Florida	301	176	125	197	112	85	187	108	79	10	4	6	104	64	40	103	63	40	1	1	------
EAST SOUTH CENTRAL:																					
Kentucky	1,236	737	499	1,028	611	417	1,002	594	408	26	17	9	208	126	82	207	125	82	1	1	------
Tennessee	966	602	364	770	469	301	760	463	297	10	6	4	196	133	63	193	130	63	3	3	------
Alabama	669	400	269	389	221	168	383	216	167	6	5	1	280	179	101	277	179	98	3	------	3
Mississippi	500	323	177	289	175	114	282	170	112	7	5	2	211	148	63	210	147	63	1	1	------
WEST SOUTH CENTRAL:																					
Arkansas	625	355	270	511	286	225	509	285	224	2	1	1	114	69	45	113	69	44	1	------	1
Louisiana	454	273	181	241	149	92	212	129	83	29	20	9	213	124	89	209	120	89	1	1	------
Oklahoma	549	339	210	452	276	176	430	258	172	22	18	4	97	63	34	56	37	19	40	26	14
Texas	1,088	644	444	901	520	381	839	481	358	62	39	23	187	124	63	183	120	63	3	3	------
MOUNTAIN:																					
Montana	124	89	35	99	69	30	71	44	27	28	25	3	25	20	5	1	1	------	24	19	5
Idaho	103	56	47	102	56	46	89	48	41	13	8	5	1	------	1	------	------	------	1	------	1
Wyoming	18	13	5	17	12	5	14	9	5	3	3	------	1	1	------	------	------	------	1	1	------
Colorado	559	368	191	536	356	180	425	278	147	111	78	33	23	12	11	19	10	9	2	1	1
New Mexico	372	226	146	345	206	139	334	201	133	11	5	6	27	20	7	1	1	------	25	19	6
Arizona	54	39	15	47	34	13	28	20	8	19	14	5	7	5	2	1	------	1	6	5	1
Utah	138	77	61	136	75	61	95	59	36	41	16	25	2	2	------	------	------	------	2	2	------
Nevada	32	19	13	14	12	2	11	9	2	3	3	------	18	7	11	1	------	1	17	7	10
PACIFIC:																					
Washington	377	225	152	350	210	140	283	161	122	67	49	18	27	15	12	2	------	2	23	13	10
Oregon	276	175	101	263	164	99	219	139	80	44	25	19	13	11	2	------	------	------	10	8	2
California	1,054	669	385	999	638	361	701	442	259	298	196	102	55	31	24	22	12	10	27	13	14

[1] Includes 29 "other colored," chiefly Chinese and Japanese. Of these 23 were males and 6 were females.

TABLE 100.—BLIND POPULATION, BY AGE, SEX, RACE, AND NATIVITY, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

AGE	All classes [1]	WHITE			Negro	Indian
		Total	Native	Foreign-born		
	BOTH SEXES					
All ages	40,913	36,640	30,313	6,327	3,936	308
Under 20 years	5,395	4,985	4,862	123	377	28
Under 5 years	220	205	205		12	2
5 to 9 years	1,057	982	971	11	71	3
10 to 14 years	2,044	1,902	1,861	41	128	11
15 to 19 years	2,074	1,896	1,825	71	166	12
20 to 59 years	16,467	14,412	12,445	1,967	1,944	102
20 to 29 years	3,313	2,973	2,843	130	318	21
30 to 39 years	3,511	3,059	2,740	319	429	20
40 to 49 years	4,418	3,785	3,201	584	603	26
50 to 59 years	5,225	4,595	3,661	934	594	35
60 years and over	18,626	16,908	12,712	4,196	1,537	166
60 to 69 years	6,685	6,031	4,749	1,282	592	54
70 to 79 years	6,997	6,395	4,737	1,658	545	53
80 years and over	4,944	4,482	3,226	1,256	400	59
Age not reported	425	335	294	41	78	12
	MALE					
All ages	23,977	21,330	17,451	3,879	2,442	182
Under 20 years	3,007	2,776	2,705	71	216	10
Under 5 years	126	118	118		6	1
5 to 9 years	600	557	551	6	40	2
10 to 14 years	1,154	1,072	1,049	23	76	3
15 to 19 years	1,127	1,029	987	42	94	4
20 to 59 years	10,391	8,992	7,614	1,378	1,315	76
20 to 29 years	1,937	1,720	1,641	79	202	14
30 to 39 years	2,161	1,868	1,642	226	278	13
40 to 49 years	2,902	2,460	2,054	406	416	22
50 to 59 years	3,391	2,944	2,277	667	419	27
60 years and over	10,351	9,387	6,976	2,411	868	86
60 to 69 years	3,949	3,531	2,732	799	378	33
70 to 79 years	3,954	3,610	2,628	982	314	27
80 years and over	2,448	2,246	1,616	630	176	26
Age not reported	228	175	156	19	43	10
	FEMALE					
All ages	16,936	15,310	12,862	2,448	1,494	126
Under 20 years	2,388	2,209	2,157	52	161	18
Under 5 years	94	87	87		6	1
5 to 9 years	457	425	420	5	31	1
10 to 14 years	890	830	812	18	52	8
15 to 19 years	947	867	838	29	72	8
20 to 59 years	6,076	5,420	4,831	589	629	26
20 to 29 years	1,376	1,253	1,202	51	116	7
30 to 39 years	1,350	1,191	1,098	93	151	7
40 to 49 years	1,516	1,325	1,147	178	187	4
50 to 59 years	1,834	1,651	1,384	267	175	8
60 years and over	8,275	7,521	5,736	1,785	669	80
60 to 69 years	2,736	2,500	2,017	483	214	21
70 to 79 years	3,043	2,785	2,109	676	231	26
80 years and over	2,496	2,236	1,610	626	224	33
Age not reported	197	160	138	22	35	2

[1] Includes "other colored," chiefly Chinese and Japanese.

TABLE 101.—BLIND POPULATION, BY SEX, RACE, NATIVITY, AND AGE WHEN VISION WAS LOST, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

AGE WHEN VISION WAS LOST	ALL CLASSES[1]			NATIVE WHITE			FOREIGN-BORN WHITE			NEGRO			INDIAN		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Total	40,913	23,977	16,936	30,313	17,451	12,862	6,327	3,879	2,448	3,936	2,442	1,494	308	182	126
Under 20 years[2]	14,727	8,110	6,617	12,742	6,978	5,764	758	399	359	1,128	678	450	90	48	42
Under 5 years	8,340	4,411	3,929	7,415	3,903	3,512	341	177	164	534	307	227	43	18	25
Born blind	3,978	2,168	1,810	3,571	1,922	1,649	116	59	57	274	177	97	13	7	6
Under 1 year	2,215	1,094	1,121	2,013	1,009	1,004	97	46	51	92	36	56	13	3	10
1 year	554	284	270	490	254	236	50	15	15	29	12	17	4	2	2
2 to 4 years	1,593	865	728	1,341	718	623	98	57	41	139	82	57	13	6	7
5 to 9 years	2,478	1,373	1,105	2,100	1,156	944	161	88	73	203	118	85	13	11	2
10 to 14 years	1,849	1,129	720	1,541	940	601	112	61	51	181	119	62	15	9	6
15 to 19 years	1,410	884	526	1,100	695	405	117	64	53	179	116	63	13	8	5
Age not definitely reported[2]	650	313	337	586	284	302	27	9	18	31	18	13	6	2	4
20 to 64 years	17,341	11,168	6,173	11,735	7,368	4,367	3,369	2,292	1,077	2,078	1,396	682	142	97	45
20 to 24 years	1,543	1,099	444	1,149	804	345	164	116	48	219	172	47	11	7	4
25 to 34 years	3,119	2,157	962	2,127	1,438	689	523	399	124	435	294	141	30	23	7
35 to 44 years	3,783	2,612	1,171	2,440	1,642	798	764	570	194	553	380	173	23	17	6
45 to 54 years	4,160	2,573	1,587	2,771	1,653	1,118	878	578	300	469	312	157	39	27	12
55 to 59 years	2,043	1,203	840	1,389	784	605	438	282	156	197	123	74	15	10	5
60 to 64 years	2,510	1,423	1,087	1,708	960	748	578	335	243	199	113	86	22	13	9
Age not definitely reported	183	101	82	151	87	64	24	12	12	6	2	4	2		2
65 years or over	7,853	4,155	3,698	5,131	2,716	2,415	2,017	1,089	928	641	321	320	62	29	33
65 to 69 years	2,195	1,248	947	1,431	815	616	552	321	231	194	105	89	17	7	10
70 to 74 years	2,284	1,247	1,037	1,504	820	684	577	324	253	190	97	93	13	6	7
75 to 79 years	1,599	807	792	1,081	545	536	403	202	201	107	56	51	7	4	3
80 years or over	1,619	775	844	1,003	481	522	458	228	230	136	57	79	22	9	13
Age not definitely reported	156	78	78	112	55	57	27	14	13	14	6	8	3	3	
Age not reported	992	544	448	705	389	316	183	99	84	89	47	42	14	8	6

[1] Includes "Other colored," chiefly Chinese and Japanese.
[2] Includes persons under 20 years of age at the date of enumeration for whom the age when vision was lost was not reported.

TABLE 102.—BLIND POPULATION, BY AGE AT ENUMERATION AND AGE WHEN VISION WAS LOST, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

AGE WHEN VISION WAS LOST	AGE AT ENUMERATION															
	All ages	Under 5 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 59 years	60 to 64 years	65 to 69 years	70 to 74 years	75 to 79 years	80 years and over	Age not reported
Total	40,913	220	1,057	2,044	2,074	1,677	3,120	3,999	4,829	2,842	3,242	3,443	3,479	3,518	4,944	425
Under 20 years[1]	14,727	220	1,057	2,044	2,074	1,551	2,225	1,893	1,463	619	503	365	265	178	139	131
Under 5 years	8,340	213	888	1,427	1,261	898	1,214	869	636	305	218	153	91	54	35	78
Born blind	3,978	133	513	783	637	394	524	377	259	99	79	61	35	21	14	49
Under 1 year	2,215	57	234	356	356	294	353	201	155	84	50	29	21	9	2	14
1 year	554	14	37	80	75	56	83	83	50	31	10	13	6	6	3	7
2 to 4 years	1,593	9	104	208	193	154	254	208	172	91	79	50	29	18	16	8
5 to 9 years	2,478	------	84	311	318	255	392	367	286	113	113	80	53	41	46	19
10 to 14 years	1,849	------	------	113	258	205	302	312	265	98	77	77	54	42	27	19
15 to 19 years	1,410	------	------	------	67	159	287	314	238	86	81	49	53	37	27	12
Age not definitely reported[1]	650	7	85	193	170	34	30	31	38	17	14	6	14	4	4	3
20 to 64 years	17,341	------	------	------	------	73	836	2,022	3,238	2,173	2,670	2,644	1,758	1,110	711	106
20 to 24 years	1,543	------	------	------	------	73	409	371	272	100	96	71	52	55	32	12
25 to 34 years	3,119	------	------	------	------	------	423	991	708	291	233	191	113	79	68	22
35 to 44 years	3,783	------	------	------	------	------	------	642	1,412	542	429	315	209	132	83	19
45 to 54 years	4,160	------	------	------	------	------	------	------	816	991	906	613	415	247	149	23
55 to 59 years	2,043	------	------	------	------	------	------	------	------	227	670	524	307	201	104	10
60 to 64 years	2,510	------	------	------	------	------	------	------	------	------	310	908	635	380	262	15
Age not definitely reported	183	------	------	------	------	------	4	18	30	22	26	22	27	16	13	5
65 years or over	7,853	------	------	------	------	------	------	------	------	------	------	346	1,359	2,136	3,959	53
65 to 69 years	2,195	------	------	------	------	------	------	------	------	------	------	342	939	585	320	9
70 to 74 years	2,284	------	------	------	------	------	------	------	------	------	------	------	405	1,115	751	13
75 to 79 years	1,599	------	------	------	------	------	------	------	------	------	------	------	------	397	1,191	11
80 years or over	1,619	------	------	------	------	------	------	------	------	------	------	------	------	------	1,609	10
Age not definitely reported	156	------	------	------	------	------	------	------	------	------	------	4	15	39	88	10
Age not reported	992	------	------	------	------	53	59	84	128	50	69	88	97	94	135	135

[1] Includes persons under 20 years of age at the date of enumeration for whom the age when vision was lost was not reported.

TABLE 103.—BLIND POPULATION 15 YEARS OF AGE AND OVER, BY SEX, AGE, AND MARITAL CONDITION, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

AGE GROUP	Total	Single	Married	Widowed	Divorced	Marital condition not reported
	MALE					
15 years and over	22,097	7,491	9,823	3,953	500	330
15 to 19 years	1,127	1,074	6	1	----------	46
20 to 24 years	951	857	51	5	----------	38
25 to 29 years	986	754	195	11	9	17
30 to 34 years	872	586	244	13	25	4
35 to 39 years	1,289	686	496	48	43	16
40 to 44 years	1,292	580	588	73	42	9
45 to 49 years	1,610	573	805	133	70	29
50 to 54 years	1,564	495	867	150	35	17
55 to 59 years	1,827	481	1,027	244	62	13
60 to 64 years	1,910	444	1,072	318	65	11
65 to 69 years	2,039	324	1,180	461	52	22
70 to 74 years	1,999	247	1,122	569	43	18
75 to 79 years	1,955	165	1,064	686	24	16
80 to 84 years	1,380	101	625	627	16	11
85 years and over	1,068	46	414	585	10	13
Age not reported	228	78	67	29	4	50
	FEMALE					
15 years and over	15,495	5,474	3,915	5,671	170	265
15 to 19 years	947	893	9	2	----------	43
20 to 24 years	726	644	30	5	1	46
25 to 29 years	650	530	99	10	----------	11
30 to 34 years	612	418	153	17	6	18
35 to 39 years	738	413	259	43	19	4
40 to 44 years	680	355	245	68	4	8
45 to 49 years	836	326	354	130	16	10
50 to 54 years	819	259	373	161	18	8
55 to 59 years	1,015	318	424	242	23	8
60 to 64 years	1,332	341	536	424	21	10
65 to 69 years	1,404	262	486	630	17	9
70 to 74 years	1,480	230	415	799	21	15
75 to 79 years	1,563	200	294	1,049	12	8
80 to 84 years	1,264	143	131	969	7	14
85 years and over	1,232	70	77	1,070	4	11
Age not reported	197	72	30	52	1	42

TABLE 104.—BLIND POPULATION 15 YEARS OF AGE AND OVER, BY MARITAL CONDITION, SEX, AND AGE WHEN VISION WAS LOST, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

SEX, AND AGE WHEN VISION WAS LOST	BLIND PERSONS 15 YEARS OF AGE AND OVER [1]						
	Total	Single	Married, widowed, or divorced				Marital condition not reported
			Total	Married	Widowed	Divorced	
Male	22,097	7,491	14,276	9,823	3,953	500	330
Under 20 years	6,171	4,511	1,521	1,241	229	51	139
Under 5 years [2]	3,058	2,440	530	435	79	16	88
5 to 9 years	1,134	771	348	287	52	9	15
10 to 14 years	1,052	707	321	268	41	12	24
15 to 19 years	884	566	306	238	54	14	12
Childhood or youth (age not definitely reported)	43	27	16	13	3	----	----
20 years or over	15,323	2,732	12,461	8,399	3,624	438	130
20 to 24 years	1,099	557	538	428	86	24	4
25 to 44 years [2]	4,815	1,243	3,527	2,648	672	207	45
45 to 64 years [2]	5,254	675	4,534	3,182	1,198	154	45
65 years or over [2]	4,155	257	3,862	2,141	1,668	53	36
Age not reported	603	248	294	183	100	11	61
Female	15,495	5,474	9,756	3,915	5,671	170	265
Under 20 years	5,124	3,900	1,086	724	340	22	138
Under 5 years [2]	2,908	2,390	422	316	101	5	96
5 to 9 years	949	685	244	164	76	4	20
10 to 14 years	684	462	206	119	79	8	16
15 to 19 years	526	326	194	116	73	5	6
Childhood or youth (age not definitely reported)	57	37	20	9	11	----	----
20 years or over	9,871	1,349	8,451	3,118	5,187	146	71
20 to 24 years	444	202	240	147	82	11	2
25 to 44 years [2]	2,162	454	1,689	1,008	636	45	19
45 to 64 years [2]	3,567	386	3,157	1,385	1,717	55	24
65 years or over [2]	3,698	307	3,365	578	2,752	35	2
Age not reported	500	225	219	73	144	2	56

[1] Includes those whose age at enumeration was not reported.
[2] Included under the appropriate age group are those reporting the period of life but not the exact age at which vision was lost, infancy, early adult life, middle life, and old age.

TABLE 105.—BLIND POPULATION 10 YEARS OF AGE AND OVER, BY SEX, RACE, NATIVITY, AND OCCUPATION, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

OCCUPATION	MALE [1]							FEMALE [1]						
	All classes	White			Colored			All classes	White			Colored		
		Total	Native	Foreign-born	Total [2]	Negro	Indian		Total	Native	Foreign-born	Total [2]	Negro	Indian
Total	23,251	20,655	16,782	3,873	2,596	2,396	179	16,385	14,798	12,355	2,443	1,587	1,457	124
Not gainfully employed	17,344	15,358	12,292	3,066	1,986	1,813	156	15,115	13,631	11,310	2,321	1,484	1,362	119
Gainfully employed	5,907	5,297	4,490	807	610	583	23	1,270	1,167	1,045	122	103	95	5
Agriculture, forestry, and animal husbandry	864	794	691	103	70	56	13	84	76	68	8	8	6	1
Farmers, stock raisers, gardeners, florists, fruit growers, etc.	660	604	518	86	56	44	12	54	49	41	8	5	3	1
Agricultural laborers	136	127	118	9	9	7	1	18	18	18				
All other	68	63	55	8	5	5		12	9	9		3	3	
Extraction of minerals	12	10	9	1	2	2								
Manufacturing and mechanical industries	2,470	2,234	1,850	384	236	232	4	620	583	519	64	37	32	4
Manufacturers, officials, managers, and contractors	46	45	40	5	1	1		2	2	2				
Seamstresses and fancy workers (not in factory)								259	246	225	21	13	12	1
Laborers, building, general, and not specified	198	127	111	16	71	69	2	6	6	5	1			
Semiskilled operatives:														
Broom makers	825	777	629	148	48	47	1	12	12	9	3			
Piano tuners	447	447	418	29				2	2	2				
Chair caners	381	310	242	68	71	71		95	82	75	7	13	13	
Basket workers	103	97	61	36	6	6		58	54	50	4	4	2	2
Carpet and rug makers	60	57	39	18	3	3		36	34	29	5	2	1	1
Weavers	51	47	40	7	4	4		43	42	33	9	1	1	
Tobacco workers	21	17	13	4	4	4		1	1	1				
Hammock and net makers	20	17	8	9	3	3		2	1	1		1	1	
Printing and publishing	18	18	15	3				12	12	12				
All other	300	275	234	41	25	24	1	92	89	75	14	3	2	

See footnotes at end of table.

TABLE 105.—BLIND POPULATION 10 YEARS OF AGE AND OVER, BY SEX, RACE, NATIVITY, AND OCCUPATION, FOR THE UNITED STATES 1920—Continued

[Figures include only blind persons returning special schedules]

OCCUPATION	MALE [1]							FEMALE [1]						
	All classes	White			Colored			All classes	White			Colored		
		Total	Native	Foreign-born	Total [2]	Negro	Indian		Total	Native	Foreign-born	Total [2]	Negro	Indian
Transportation	92	87	82	5	5	5		18	18	17	1			
Telephone operatives	37	37	35	2				18	18	17	1			
Drivers and teamsters	14	13	13		1	1								
All other	41	37	34	3	4	4								
Trade	1,230	1,135	951	184	95	92	1	34	30	27	3	4	4	
Hucksters and peddlers	311	285	228	57	26	24	1	9	8	8		1	1	
Clerks in stores, salesmen and saleswomen	113	111	105	6	2	2		4	4	4				
Real estate and insurance agents, etc	73	72	63	9	1	1		5	5	4	1			
Bankers, brokers, and money lenders	17	16	15	1	1	1								
Commercial travelers	15	15	13	2										
Retail dealers:														
Groceries	64	59	52	7	5	5		2	2	2				
Cigars and tobacco	41	41	34	7				1				1	1	
Music and musical instruments	19	19	15	4										
General stores	16	16	13	3										
All others	399	364	293	71	35	35		11	9	7	2	2	2	
Newspaper carriers and news dealers	127	106	93	13	21	20								
All other	35	31	27	4	4	4		2	2	2				
Public service	28	27	23	4	1	1		6	6	6				
Professional service	751	638	564	74	113	109	4	254	240	215	25	14	14	
Musicians and teachers of music	387	339	302	37	48	47	1	119	109	102	7	10	10	
Clergymen	90	53	49	4	37	37		3	3	3				
School-teachers, college presidents, and professors	71	66	57	9	5	5		82	80	66	14	2	2	
Lawyers, judges, and justices	35	34	32	2	1	1								
Authors, editors, reporters, and librarians	31	26	22	4	5	5		13	13	13				
Dentists, osteopaths, physicians and surgeons, trained nurses, and veterinary surgeons	25	24	22	2	1		1	3	3	2	1			
Public entertainers	23	20	17	3	3	3		5	5	5				
Other professional occupations	22	14	8	6	8	6	2	3	3	3				
Semiprofessional occupations	67	62	55	7	5	5		26	24	21	3	2	2	

Domestic and personal service	225	159	130	29	66	64	1	168	129	112	17	39	39
Wood sawyers and woodchoppers	51	25	19	6	26	25	1						
Waiters and servants	41	30	25	5	11	11		61	53	45	8	8	8
Laundry operatives and laundresses (not in laundry)	32	25	21	4	7	6		45	22	18	4	23	23
Boarding and lodging house keepers	26	24	22	2	2	2		20	17	15	2	3	3
Janitors and sextons	18	14	10	4	4	4							
All other	57	41	33	8	16	16		42	37	34	3	5	5
Clerical occupations	207	191	173	18	16	16		74	73	70	3	1	
Agents and canvassers	165	150	136	14	15	15		23	23	23			
Clerks (except clerks in stores)	19	18	15	3	1	1		8	7	7		1	
Stenographers and typists	16	16	15	1				42	42	39	3		
All other	7	7	7					1	1	1			
Unclassifiable as to occupations	28	22	17	5	6	6		12	12	11	1		

[1] Includes those whose age was not reported.
[2] Includes 27 other colored, chiefly Chinese and Japanese. Of these, 21 were males and 6 were females.

TABLE 106.—BLIND POPULATION 10 YEARS OF AGE AND OVER, BY SEX, OCCUPATION, AND AGE WHEN VISION WAS LOST, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

OCCUPATION	Total [1]	LOSING VISION AT AGE OF—						
		Less than 20 years			20 years or over			
		Total [2]	Less than 5 years	5 to 19 years	Total	20 to 44 years	45 to 64 years	65 yrs. or over
	MALE							
Total	5,907	2,617	1,144	1,457	3,187	2,242	811	134
Broom makers	825	373	151	219	439	351	83	5
Farmers, etc.[3]	660	152	38	113	494	256	174	64
Piano tuners	447	394	196	195	43	41	1	1
Retail dealers (other than grocers and cigar and tobacco dealers)	434	142	52	89	285	222	58	5
Musicians and teachers of music	387	315	192	122	68	54	13	1
Chair caners	381	190	70	119	186	126	54	6
Hucksters and peddlers	311	75	37	38	233	167	62	4
Laborers, building, general, and not specified	198	67	29	38	127	98	24	5
Agents and canvassers	165	60	29	31	105	80	23	2
Agricultural laborers	136	63	25	36	69	46	21	2
Newspaper carriers and news dealers	127	56	26	30	70	51	18	1
Clerks in stores and salesmen	113	56	28	28	54	44	8	2
Basket workers	103	21	9	11	81	54	24	3
Clergymen	90	41	17	24	45	28	13	4
Real estate and insurance agents, etc	73	23	7	16	49	31	15	3
School teachers, college presidents, and professors	71	56	16	40	15	10	5	-----
Retail grocers	64	27	10	17	37	31	5	1
Carpet and rug makers	60	16	7	9	41	33	7	1
Weavers	51	21	9	12	30	23	7	-----
Wood sawyers and woodchoppers	51	22	6	15	29	24	5	-----
Manufacturers, etc.[4]	46	13	4	9	33	21	10	2
Cigar and tobacco dealers	41	8	5	3	32	25	6	1
Waiters and servants	41	16	8	8	23	17	5	1
Telephone operatives	37	18	8	10	19	16	3	-----
Lawyers, judges, and justices	35	16	7	9	19	8	9	2
Laundry operatives	32	6	2	4	26	17	8	1
Authors, editors, reporters, and librarians	31	14	7	7	17	11	6	-----
All other and unclassifiable	897	356	149	205	518	357	144	1

See footnotes at end of table.

TABLE 106.—BLIND POPULATION 10 YEARS OF AGE AND OVER, BY SEX, OCCUPATION, AND AGE WHEN VISION WAS LOST, FOR THE UNITED STATES: 1920—Continued.

[Figures include only blind persons returning special schedules]

OCCUPATION	Total[1]	LOSING VISION AT AGE OF—						
		Less than 20 years			20 years or over			
		Total[2]	Less than 5 years	5 to 19 years	Total	20 to 44 years	45 to 64 years	65 yrs. or over
	FEMALE							
Total	1,270	802	489	307	432	228	148	56
Seamstresses and fancy workers (not in factory)	259	126	74	49	130	58	51	21
Musicians and teachers of music	119	108	79	29	9	9	-----	-----
Chair caners	95	73	47	26	19	16	3	-----
School teachers, college presidents, and professors	82	70	38	32	7	5	2	-----
Waitresses and servants	61	34	20	14	22	14	6	2
Basket workers	58	39	26	13	18	6	12	-----
Farmers, etc.[3]	54	10	5	5	43	10	19	14
Laundry operatives, and laundresses (not in laundry)	45	18	7	11	26	18	6	2
Weavers	43	38	19	19	4	3	1	-----
Stenographers and typists	42	42	36	6	-----	-----	-----	-----
Carpet and rug makers	36	20	14	6	13	7	6	-----
Agents and canvassers	23	15	8	7	7	5	2	-----
Boarding and lodging house keepers	20	7	1	6	13	5	5	3
Agricultural laborers	18	11	6	5	7	5	2	-----
Retail dealers	14	10	5	5	3	2	1	-----
Authors, editors, reporters, and librarians	13	9	3	6	3	2	1	-----
Semiskilled operatives, printing and publishing	12	10	7	3	1	1	-----	-----
Broom makers	12	5	1	4	7	5	2	-----
Hucksters and peddlers	9	5	3	2	3	1	2	-----
Practical nurses and midwives	6	3	2	1	2	2	-----	-----
All other and unclassifiable	249	149	88	58	95	54	27	14

[1] Includes those whose age at enumeration was not reported; includes also those for whom the age when vision was lost was not reported.
[2] Includes those who became blind under 20 years of age, but exact age when vision was lost not stated (16 males, 6 females).
[3] Includes stock raisers, gardeners, florists, fruit growers, etc.
[4] Includes manufacturers, officials, managers, and contractors.

TABLE 107.—BLIND PERSONS 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY SEX, OCCUPATION, AND ANNUAL EARNINGS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

OCCUPATION	BLIND PERSONS 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED						
	Total	Reporting annual earnings of—					Not reporting annual earnings
		Less than $100	$100 to $399	$400 to $799	$800 to $1,499	$1,500 and over	
	MALE						
All occupations	5,907	530	1,542	1,066	654	351	1,764
Agriculture, forestry, and animal husbandry	864	63	176	80	64	30	451
Farmers, etc.[1]	660	40	115	67	55	28	355
Agricultural laborers	136	18	38	7	5	1	67
All other	68	5	23	6	4	1	29
Extraction of minerals	12	1	2	3	2	1	3
Manufacturing and mechanical industries	2,470	254	763	547	244	96	566
Laborers, building, general, and not specified	198	57	66	20	5	-------	50
Broom makers	825	73	292	252	42	10	156
Piano tuners	447	21	68	69	110	52	127
Chair caners	381	55	161	61	4	-------	100
Basket workers	103	16	32	27	2	-------	26
Carpet and rug makers	60	2	27	20	6	1	4
All other	456	30	117	98	75	33	103
Transportation	92	7	22	26	13	6	18
Trade	1,230	88	299	225	139	98	381
Retail dealers (other than grocers)	475	24	79	95	70	43	164
Hucksters and peddlers	311	38	126	51	8	2	86
Newspaper carriers and news dealers	127	13	48	21	12	-------	33
Clerks in stores and salesmen	113	4	14	30	18	13	34
Real estate and insurance agents, etc	73	2	12	4	7	24	24
Retail grocers	64	2	13	14	11	5	19
All other	67	5	7	10	13	11	21
Public service	28	1	5	5	3	10	4
Professional service	751	52	132	108	145	97	217
Musicians and teachers of music	387	36	81	57	69	32	112
Clergymen	90	9	26	8	21	10	16
School teachers, college presidents, and professors	71	1	4	19	26	12	9
All other	203	6	21	24	29	43	80
Domestic and personal service	225	35	62	31	21	5	71
Clerical occupations	207	18	74	35	20	7	53
Agents and canvassers	165	17	67	25	10	2	44
All other	42	1	7	10	10	5	9
Unclassifiable as to occupations	28	11	7	6	3	1	-------

See footnote at end of table.

TABLE 107.—BLIND PERSONS 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED, BY SEX, OCCUPATION, AND ANNUAL EARNINGS, FOR THE UNITED STATES: 1920—Continued

[Figures include only blind persons returning special schedules]

OCCUPATION	BLIND PERSONS 10 YEARS OF AGE AND OVER GAINFULLY OCCUPIED						
	Total	Reporting annual earnings of—					Not reporting annual earnings
		Less than $100	$100 to $399	$400 to $799	$800 to $1,499	$1,500 and over	
	FEMALE						
All occupations	1,270	335	316	145	67	9	398
Agriculture, forestry, and animal husbandry	84	9	16	3	3	1	52
Farmers, etc.[1]	54	3	14	3	3	1	30
Agricultural laborers	18	4	-------	-------	-------	-------	14
All other	12	2	2	-------	-------	-------	8
Manufacturing and mechanical industries	620	240	166	54	2	1	157
Seamstresses and fancy workers (not in factory)	259	150	40	4	1	-------	64
Semiskilled operatives	361	90	126	50	1	1	93
Chair caners	95	17	44	5	-------	-------	29
Basket workers	58	18	23	6	-------	1	10
Weavers	43	9	21	8	-------	-------	5
Carpet and rug makers	36	5	10	6	-------	-------	15
All other	129	41	28	25	1	-------	34
Transportation:							
Telephone operatives	18	1	6	7	1	-------	3
Trade	34	7	9	4	2	-------	12
Retail dealers	14	1	5	1	-------	-------	7
All other	20	6	4	3	2	-------	5
Public service	6	2	2	-------	1	1	-------
Professional service	254	21	58	48	33	3	91
Musicians and teachers of music	119	15	34	13	7	-------	50
School-teachers, college presidents, and professors	82	2	12	26	20	1	21
Authors, editors, reporters, and librarians	13	1	6	2	1	-------	3
All other	40	3	6	7	5	2	17
Domestic and personal service	168	44	43	10	4	-------	67
Waitresses and servants	61	17	17	3	1	-------	23
Laundry operatives, and laundresses (not in laundry)	45	16	10	3	1	-------	15
Boarding and lodging house keepers	20	1	5	2	2	-------	10
All other	42	10	11	2	-------	-------	19
Clerical occupations	74	8	12	16	20	3	15
Stenographers and typists	42	1	3	15	17	2	4
Agents and canvassers	23	6	7	1	2	1	6
All other	9	1	2	-------	1	-------	5
Unclassifiable as to occupations	12	3	4	3	1	-------	1

[1] Includes stock raisers, gardeners, florists, fruit growers, etc.

TABLE 108.—BLIND POPULATION, BY SEX, AGE WHEN VISION WAS LOST, AND REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	Total [1]	Born blind	LOSING VISION AT AGE OF—					
			Less than 5 years	5 to 9 years	10 to 19 years	20 to 44 years	45 to 64 years	65 years or over [2]
	MALE							
All causes	23,977	2,168	2,243	1,373	2,013	5,868	5,198	4,156
Definitely reported causes	15,883	614	1,619	1,057	1,562	4,367	3,602	2,571
Cataract	2,563	215	91	47	82	267	646	1,120
Glaucoma	785	8	11	4	20	117	353	252
Atrophy of the optic nerve	1,185	56	42	48	73	442	351	141
Ophthalmia neonatorum	555	97	390	6	6	1	-------	-------
Trachoma (granular eyelids)	299	1	14	14	33	104	82	34
Diseases of the retina	325	7	15	7	26	101	107	52
Corneal ulcer	154	4	28	5	10	46	36	21
Cancer and other neoplasms	139	1	18	10	26	38	21	23
Diseases of the iris	115	2	2	1	9	50	32	15
Measles	421	2	93	68	66	96	48	34
Meningitis	253	1	103	71	47	17	5	2
Scarlet fever	215	-------	85	54	36	25	7	2
Kidney disease and diabetes	146	4	4	-------	8	26	54	48
Influenza (grippe)	142	-------	16	6	11	32	51	26
Typhoid fever	157	-------	26	21	24	55	13	16
Syphilis and locomotor ataxia	197	6	7	9	11	96	54	7
Smallpox	133	-------	37	24	18	22	20	9
Accidents	4,889	13	196	457	788	1,957	1,000	362
Explosives	777	-------	8	37	95	482	124	19
Firearms	575	-------	5	30	180	275	49	23
Falls	251	-------	25	28	27	66	66	31
Flying objects (not from explosions)	343	-------	7	29	42	116	95	41
Cutting or piercing instruments	236	-------	44	69	44	43	20	11
Burns	90	-------	9	-------	9	37	24	11
All other accidental injuries	2,617	13	98	264	391	938	622	226
Poisoning	253	1	13	9	16	101	75	33
Foreign substances in the eye	345	-------	14	16	37	138	101	35
All other definitely reported causes	2,612	196	414	180	215	636	546	339
Indefinitely or inaccurately reported causes	4,954	1,492	405	157	240	865	812	868
Congenital (cause not stated)	1,472	1,472	-------	-------	-------	-------	-------	-------
Neuralgia	204	-------	2	6	11	70	72	41
Exposure to heat	393	-------	8	3	12	132	152	77
Sore eyes	239	2	61	30	36	62	24	16
All other	2,646	18	334	118	181	601	564	734
Combination of different classes of causes	252	-------	8	13	23	66	74	61
Causes unknown or not reported	2,888	62	211	146	188	570	710	656

See footnotes at end of table.

TABLE 108.—BLIND POPULATION, BY SEX, AGE WHEN VISION WAS LOST, AND REPORTED CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920—Continued

[Figures include only blind persons returning special schedules]

REPORTED CAUSE OF BLINDNESS	Total [1]	Born blind	LOSING VISION AT AGE OF—					
			Less than 5 years	5 to 9 years	10 to 19 years	20 to 44 years	45 to 64 years	65 years or over [2]
	FEMALE							
All causes	16,936	1,810	2,119	1,105	1,246	2,577	3,515	3,697
Definitely reported causes	10,450	582	1,508	815	833	1,667	2,296	2,327
Cataract	2,333	185	90	53	65	182	523	1,154
Glaucoma	1,147	6	16	7	34	142	545	369
Atrophy of the optic nerve	571	56	37	32	47	135	163	86
Ophthalmia neonatorum	643	131	435	4	5	2	-------	-------
Trachoma (granular eyelids)	256	2	23	29	57	60	48	19
Diseases of the retina	172	6	10	6	12	33	52	45
Corneal ulcer	110	4	28	7	15	25	17	9
Cancer and other neoplasms	108	2	6	11	13	38	19	17
Diseases of the iris	125	1	1	8	7	46	43	17
Measles	376	-------	104	66	70	75	35	13
Meningitis	273	-------	100	80	50	29	4	-------
Scarlet fever	201	1	74	57	30	24	6	4
Kidney disease and diabetes	162	2	5	2	6	31	68	45
Influenza (grippe)	140	-------	7	6	9	27	47	43
Typhoid fever	96	-------	18	13	24	22	15	2
Syphilis and locomotor ataxia	55	9	4	7	5	10	13	2
Smallpox	102	-------	35	21	15	10	12	8
Accidents	1,024	12	144	198	135	224	156	120
Explosives	20	-------	-------	8	5	4	1	1
Firearms	57	-------	4	14	14	19	4	-------
Falls	194	-------	22	32	21	36	29	39
Flying objects (not from explosions)	37	-------	4	3	7	4	9	8
Cutting or piercing instruments	99	-------	34	40	10	7	3	3
Burns	23	-------	7	2	-------	5	6	2
All other accidental injuries	594	12	73	99	78	149	104	67
Poisoning	58	-------	8	7	10	15	14	3
Foreign substances in the eye	86	-------	14	12	13	21	14	8
All other definitely reported causes	2,412	165	349	189	211	516	502	363
Indefinitely or inaccurately reported causes	4,165	1,180	377	169	242	546	723	825
Congenital (cause not stated)	1,163	1,163	-------	-------	-------	-------	-------	-------
Neuralgia	344	-------	2	5	23	96	137	76
Exposure to heat	114	-------	1	3	5	30	45	26
Sore eyes	258	1	78	31	42	49	36	13
All other	2,286	16	296	130	172	371	505	710
Combination of different classes of causes	84	-------	6	8	11	19	18	19
Causes unknown or not reported	2,237	48	228	113	160	345	478	526

[1] Includes those for whom the age when vision was lost was not reported or not definitely reported; these are not assigned to any of the individual age groups except that persons reported as having lost their vision in old age, but without statement as to the exact age, are included in the group "65 years and over."

[2] Includes those who were reported as having lost their vision in old age, but without statement as to the exact age.

TABLE 109.—BLIND POPULATION 20 YEARS OF AGE AND OVER GAINFULLY OCCUPIED BEFORE VISION WAS LOST, BY SEX, OCCUPATION, AND CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920

[Figures include only blind persons returning special schedules]

CAUSE OF BLINDNESS	MALES							
	All occupations [1]	Farmers, etc.[2]	Laborers, building, general, and not specified	Carpenters and cabinetmakers	Wholesale and retail dealers (except hucksters and peddlers)	Professional service	Mine operatives (in other than coal mines, or not specified)	Agricultural laborers
Total	14,826	5,054	1,459	517	496	492	479	326
Not reporting cause	1,890	740	221	55	52	50	24	72
Reporting cause	12,936	4,314	1,238	462	444	442	455	254
Specific affection of the eye	5,084	1,752	438	202	238	237	54	93
Cataract	1,970	800	206	98	62	50	24	34
Atrophy of the optic nerve	926	226	62	35	63	56	10	10
Glaucoma	715	187	44	25	62	54	5	4
Trachoma (granular eyelids)	214	121	19	5	3	5	5	12
Corneal ulcer	100	49	9	5	2	2	3	3
Detachment of the retina	97	24	1	1	2	13	1	-
Diseases of the iris	97	24	7	2	4	8	-	1
All other	965	321	90	31	40	49	6	29
Diseases other than specific affection of the eye	1,443	503	134	51	65	46	19	31
Measles	178	113	20	4	3	2	1	7
Kidney disease and diabetes	116	45	12	4	9	8	-	1
Influenza (grippe)	102	45	4	1	7	4	1	3
Typhoid fever	84	36	6	3	3	2	4	5
Rheumatism	80	26	7	8	2	1	2	1
Locomotor ataxia	62	7	2	2	3	2	2	-
Diseases of the head, other than meningitis	51	18	5	4	-	1	1	-
All other	770	213	78	25	38	26	8	14
Accident or other injury (including sympathetic ophthalmia)	3,277	871	336	111	64	58	339	56
Explosions of dynamite, gunpowder, etc	608	105	66	10	4	9	197	8
Firearms	343	161	17	13	7	7	7	8
Flying objects, other than in explosions	256	70	35	10	3	-	10	4
Explosions, of other than of dynamite, etc., or not specified	230	20	21	2	2	8	48	-
Falls	164	38	14	10	7	3	3	2
Blows to the head	98	28	9	4	3	1	1	1
In mines or quarries (n. o. s.) [3]	82	2	4	-	1	-	44	-
Cutting or piercing instruments	75	32	7	6	2	1	-	1
Burns	70	7	7	1	-	-	2	3
All other	1,351	408	156	55	35	29	27	29
Poisoning	203	45	15	10	5	10	6	5
Foreign substances in the eye	274	55	44	7	7	5	6	5
Acids and other chemically destructive substances	171	19	35	3	4	5	3	1
Dust and other foreign particles	103	36	9	4	3	-	3	4
All other definitely reported causes [3]	226	87	23	13	4	9	3	5
Causes indefinitely or inaccurately reported	2,429	1,001	248	68	61	77	28	59
Exposure to heat	358	126	32	12	5	3	2	5
Old age	289	143	36	13	8	5	5	8
Military service	203	106	12	5	4	8	1	2
Neuralgia	173	118	9	6	5	2	2	5
Strained eyes	115	21	5	4	7	18	-	3
Sore eyes	97	62	7	-	2	2	-	8
Catarrh and colds	89	43	7	2	3	-	2	3
Paralysis	85	25	8	2	3	4	2	-
Electric light	23	-	-	1	-	3	-	-
All other	997	357	132	23	24	32	14	25

See footnotes at end of table.

TABLE 109.—BLIND POPULATION 20 YEARS OF AGE AND OVER GAINFULLY OCCUPIED BEFORE VISION WAS LOST, BY SEX, OCCUPATION, AND CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920—Continued

[Figures include only blind persons returning special schedules]

CAUSE OF BLINDNESS	MALES—continued							
	Railroad workers [3]	Chauffeurs, teamsters, etc.[4]	Blacksmiths, forgemen, and hammermen	Mechanics (n.o.s.) [5]	Soldiers, sailors, and marines	Coal mine operatives	Machinists, millwrights, and toolmakers	Clerks in stores and salesmen
Total	275	247	240	225	212	200	182	166
Not reporting cause	29	49	20	17	22	9	15	20
Reporting cause	246	198	220	208	190	191	167	146
Specific affection of the eye	101	75	72	76	26	39	59	76
Cataract	40	28	33	29	10	13	14	17
Atrophy of the optic nerve	25	16	9	14	5	10	9	23
Glaucoma	11	9	9	16	3	4	15	19
Trachoma (granular eyelids)	2	2	1	4	2	3	1	-------
Corneal ulcer	1	1	2	1	1	2	1	-------
Detachment of the retina	5	2	1	-------	-------	1	5	5
Diseases of the iris	4	1	3	1	-------	-------	2	2
All other	13	16	14	11	5	6	12	10
Diseases other than specific affection of the eye	22	25	14	23	23	9	17	18
Measles	3	1	-------	-------	1	3	-------	-------
Kidney disease and diabetes	2	2	-------	1	1	-------	2	1
Influenza (grippe)	-------	1	1	2	1	1	-------	-------
Typhoid fever	-------	1	1	1	-------	-------	1	1
Rheumatism	2	-------	-------	4	1	1	1	-------
Locomotor ataxia	2	3	-------	-------	-------	-------	1	2
Diseases of the head, other than meningitis	1	1	1	1	-------	-------	1	-------
All other	12	16	11	14	19	4	11	14
Accident or other injury (including sympathetic ophthalmia)	79	48	70	73	81	120	71	29
Explosions of dynamite, gunpowder, etc	9	-------	5	2	29	38	1	-------
Firearms	6	3	4	4	17	9	5	5
Flying objects, other than in explosions	7	3	10	16	1	6	17	-------
Explosions, of other than of dynamite, etc., or not specified	4	2	3	11	4	17	3	3
Falls	4	5	1	3	1	5	6	4
Blows to the head	4	1	4	2	3	2	1	1
In mines or quarries (n. o. s.) [5]	-------	-------	-------	-------	-------	22	-------	-------
Cutting or piercing instruments	2	1	-------	3	-------	1	-------	1
Burns	3	1	7	1	2	2	1	-------
All other	40	32	36	31	24	18	37	15
Poisoning	3	4	1	2	2	2	3	2
Foreign substances in the eye	3	5	2	5	14	3	3	3
Acids and other chemically destructive substances	2	4	1	4	10	3	1	3
Dust and other foreign particles	1	1	1	1	4	-------	2	-------
All other definitely reported causes [6]	3	3	5	2	4	1	3	2
Causes indefinitely or inaccurately reported	35	38	56	27	40	17	11	16
Exposure to heat	11	3	27	6	3	2	3	1
Old age	-------	1	8	3	-------	1	1	2
Military service	-------	-------	2	1	24	-------	2	1
Neuralgia	-------	2	3	-------	-------	-------	-------	-------
Strained eyes	2	3	-------	1	1	1	1	1
Sore eyes	-------	-------	1	1	2	1	-------	-------
Catarrh and colds	-------	2	2	-------	-------	-------	1	-------
Paralysis	3	2	2	-------	-------	1	2	3
Electric light	-------	-------	-------	2	-------	-------	-------	-------
All other	19	20	11	13	10	11	1	8

See footnotes at end of table.

TABLE 109.—BLIND POPULATION 20 YEARS OF AGE AND OVER GAINFULLY OCCUPIED BEFORE VISION WAS LOST, BY SEX, OCCUPATION, AND CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920—Continued

[Figures include only blind persons returning special schedules]

CAUSE OF BLINDNESS	MALES—continued							
	Cooks, waiters, and servants	Painters, etc.[6]	Brick and stone masons	Clerks (except clerks in stores) and stenographers	Engineers (stationary) and cranemen	Iron and steel operatives (semi-skilled)[7]	Firemen (stationary) etc.	Manufacturers, officials, managers, and contractors
Total	166	166	161	158	144	137	120	11
Not reporting cause	29	21	16	19	8	14	14	12
Reporting cause	137	145	145	139	136	123	106	103
Specific affection of the eye	57	62	53	86	45	46	29	59
Cataract	14	24	27	20	14	19	11	23
Atrophy of the optic nerve	17	11	2	23	7	11	7	12
Glaucoma	7	14	9	15	6	3	3	15
Trachoma (granular eyelids)	2		1	2	1	1		2
Corneal ulcer	1		3	1	1			
Detachment of the retina	1	1		2		2		1
Diseases of the iris	1	1	1	5		2	1	
All other	14	11	10	18	16	8	7	6
Diseases other than specific affection of the eye	14	15	5	14	14	15	7	8
Measles			1		2			
Kidney disease and diabetes	1			2			1	1
Influenza (grippe)	1			1	1	1		1
Typhoid fever					2		1	
Rheumatism	1	1		1			1	
Locomotor ataxia	2	2		1		1		3
Diseases of the head, other than meningitis	1			1		1	1	
All other	8	12	4	8	9	12	3	3
Accident or other injury (including sympathetic ophthalmia)	23	25	45	19	47	43	23	23
Explosions of dynamite, gunpowder, etc.	2	1	12	3	1	2	3	8
Firearms	1	3	1	2		5	2	1
Flying objects, other than in explosions	2	2	6		6	6	1	2
Explosions, of other than of dynamite, etc., or not specified		1	2	3	9	5	4	5
Falls	4	3	3		2	2		2
Blows to the head	3		1	1	1	1		
In mines or quarries (n. o. s.)[8]		1	1		2			
Cutting or piercing instruments			1		1			
Burns	1	2			2	3	4	1
All other	10	12	18	10	23	19	9	4
Poisoning	2	24	3	3				
Foreign substances in the eye	2	2	12	1	2	4	3	1
Acids and other chemically destructive substances	1	1	11	1	2	1	3	1
Dust and other foreign particles	1	1	1			3		
All other definitely reported causes[8]	1	1	3	2	3	1	1	3
Causes indefinitely or inaccurately reported	38	16	24	14	25	14	43	9
Exposure to heat	16	3	2		11	5	34	1
Old age	1	2	3	1	1	1	1	1
Military service		1	3	2	1	1		
Neuralgia	1	1	1					
Strained eyes			1	3		1		1
Sore eyes	1							
Catarrh and colds	1	1	1			1	1	
Paralysis	3	1	1			1		1
Electric light	2				4			
All other	13	7	12	8	8	4	7	5

See footnotes at end of table.

TABLE 109.—BLIND POPULATION 20 YEARS OF AGE AND OVER GAINFULLY OCCUPIED BEFORE VISION WAS LOST, BY SEX, OCCUPATION, AND CAUSE OF BLINDNESS, FOR THE UNITED STATES: 1920—Continued

[Figures include only blind persons returning special schedules]

CAUSE OF BLINDNESS	FEMALES							
	All occupations[1]	Farmers, etc.[2]	Waitresses and servants (other than cooks)	Dressmakers and seamstresses (not in factory)	Laundry operatives, and launderesses (not in laundry)	Teachers, college presidents, and professors	Cooks	Agricultural laborers
Total	3,073	490	453	349	276	232	215	146
Not reporting cause	476	104	79	41	53	23	38	22
Reporting cause	2,597	386	374	308	223	209	177	124
Specific affection of the eye	1,193	146	167	156	77	138	59	43
Cataract	481	87	73	53	47	25	39	23
Glaucoma	280	29	28	45	8	42	8	6
Atrophy of the optic nerve	100	3	17	19	11	15	5	2
Diseases of the iris	42	1	9	7		7		
Trachoma (granulated eyelids)	26	5	4	3		1	1	4
Detachment of the retina	17	1	3	1		6	1	
Corneal ulcer	15	2	2	1	1	2		1
All other	232	18	31	27	10	40	5	7
Diseases other than specific affection of the eye	401	40	67	50	38	32	24	10
Measles	31	3	12		4	2	2	2
Kidney disease and diabetes	28	4	5	3	2	6		
Influenza (grippe)	27	4	1	3	1	2	4	
Rheumatism	21	2	7	2	1	2		
Typhoid fever	16	2	2	3	3	2		
Diseases of the head, other than meningitis	14	2	1	1	3		1	1
All other	264	23	39	38	24	18	17	7
Accident or other injury including sympathetic ophthalmia)	190	20	34	25	19	7	11	4
Falls	41	1	8	6	4	2	2	
Firearms	10	3	2		1	1		1
Flying objects, other than in explosions	10	2			2	1	1	
Blows to the head	10	2	2	1	2		2	
Cutting or piercing instruments	5	1			2			
Explosives	5				1			
Burns	4	1					2	
All other	105	10	22	18	7	3	4	3
Foreign substances in the eye	25	3	3		5	1	3	4
Other definitely reported causes [9]	36	3	9	5	2	2	2	3
Causes indefinitely or inaccurately reported	752	174	94	72	82	29	78	60
Old age	106	32	13	7	10	4	6	12
Neuralgia	97	36	13	5	13	5	5	10
Exposure to heat	67	4	2		9		37	7
Strained eyes	53	4	1	29	3	3	1	
Sore eyes	37	13	8	1	2	1	2	3
Catarrh and colds	21	4	8	1		1	2	3
Paralysis	16	2	5	3	1			1
All other	355	79	44	26	44	15	25	24

[1] Includes other specified occupations, as well as many occupations indefinitely reported See Table 38 of the earlier report, The Blind in the United States, 1920.
[2] Includes stock raisers, gardeners, florists, fruit growers, etc.
[3] Includes locomotive engineers and firemen, switchmen, flagmen, yardmen, etc.
[4] Includes carriage drivers and draymen.
[5] Not otherwise specified.
[6] Includes glaziers, varnishers, enamelers, etc.
[7] Blast furnaces and steel rolling mills, automobile, implement, and wagon factories, car shops, shipyards, etc.
[8] Includes combination of different classes of causes.
[9] Includes poisoning and combination of different classes of causes.

TABLE 110.—BLIND DEAF-MUTES, FOR WHOM SPECIAL SCHEDULES WERE RETURNED, FOR THE UNITED STATES: 1920

CLASSIFICATION	Number
Total	169
Male	79
Female	90
CLASSIFIED ACCORDING TO RACE AND NATIVITY	
White	159
Male	75
Female	84
Native	150
Male	69
Female	81
Foreign-born	9
Male	6
Female	3
Colored	10
Male	4
Female	6
Negro	9
Male	3
Female	6
Chinese	1
Male	1
CLASSIFIED ACCORDING TO AGE	
1 to 4 years	1
5 to 9 years	15
10 to 14 years	7
15 to 19 years	9
20 to 24 years	13
25 to 29 years	12
30 to 34 years	9
35 to 39 years	18
40 to 44 years	10
45 to 49 years	9
50 to 54 years	15
55 to 59 years	15
60 to 64 years	13
65 to 69 years	7
70 to 74 years	4
75 to 79 years	5
80 to 84 years	4
85 years and over	1
Age not reported	2
PERSONS 15 YEARS OF AGE AND OVER, CLASSIFIED ACCORDING TO MARITAL CONDITION	
Male	71
Single	55
Married	10
Widowed	2
Marital condition not reported	4
Female	75
Single	63
Married	8
Widowed	1
Marital condition not reported	3
CLASSIFIED ACCORDING TO AGE WHEN DEFECT OCCURRED	
Blindness:	
Congenital	33
Not congenital [1]	136
Age when vision was lost—	
Less than 1 year	7
1 to 4 years	23
5 to 9 years	20
10 to 14 years	12
15 to 19 years	5
20 to 24 years	5
25 to 34 years	12
35 to 44 years	9
45 to 54 years	16
55 to 64 years	5
65 to 74 years	3
80 to 84 years	2
Age not definitely reported—	
Childhood	1
Prime	2
Middle	3
Age not reported	11
Deafness:	
Congenital	88
Not congenital [2]	81
Age when hearing was lost—	
Less than 1 year	7
1 year	8
2 years	9
3 years	3
4 years	7
5 years	10
6 years	3
7 years	5
8 years	7
9 years	3
10 years or over	7
Age not definitely reported—	
Infancy	8
Childhood	1
Age not reported	3

[1] Includes those for whom the age when vision was lost was not reported.
[2] Includes those for whom the age when hearing was lost was not reported.

TABLE 110.—BLIND DEAF-MUTES, FOR WHOM SPECIAL SCHEDULES WERE RETURNED, FOR THE UNITED STATES: 1920—Continued

CLASSIFICATION	Number
CLASSIFIED ACCORDING TO REPORTED CAUSE OF DEFECT	
Blindness:	
Disease	67
Glaucoma	2
Cataract	10
Corneal ulcer	2
Meningitis	16
Brain fever	4
Measles	3
Scarlet fever	8
Typhoid fever	2
Epilepsy	2
All other diseases	18
Accident (including sympathetic ophthalmia)	5
Combination of different classes of causes	3
Causes indefinitely or inaccurately reported	54
Congenital	30
Catarrh	3
All other	21
Cause unknown	40
Deafness:	
Disease	46
Scarlet fever	11
Measles	5
Typhoid fever	2
Meningitis	16
Brain fever	4
Abscess in the head	3
All other diseases	5
Injury from fall	2
Causes indefinitely or inaccurately reported	103
Congenital	88
Catarrh	3
All other	12
Cause unknown	18
CLASSIFIED ACCORDING TO RELATIONSHIP OF PARENTS	
Parents not first cousins	134
Parents first cousins	22
Not reporting as to relationship of parents	13

CLASSIFICATION	Number
CLASSIFIED ACCORDING TO STATUS OF PARENTS AS TO DEFECT	
Neither parent blind nor deaf	149
One parent only blind or deaf	5
One parent blind, the other n either blind nor deaf	2
Father blind	2
One parent deaf, the other neither blind nor deaf	3
Father deaf	1
Mother deaf	2
Not reporting as to vision or hearing of parents	14
Both parents deaf but neither blind	1
CLASSIFIED ACCORDING TO STATUS AS TO BROTHERS AND SISTERS	
Reporting no brothers or sisters	3
Reporting brothers or sisters	159
Reporting no blind or deaf brothers or sisters	105
Reporting blind or deaf brothers or sisters	52
Reporting blind brothers or sisters but no deaf brothers or sisters	6
Reporting deaf brothers or sisters but no blind brothers or sisters	23
Reporting both blind and deaf brothers or sisters	23
Not reporting as to vision or hearing of brothers or sisters	2
Not reporting as to existence of brothers or sisters	7
CLASSIFIED ACCORDING TO STATUS AS TO CHILDREN	
Reporting no children	147
Reporting children	21
Reporting no blind or deaf children	19
Reporting deaf children but no blind children	2
Not reporting as to existence of children	1

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